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A New Genus and Twenty-Six New Species of Butterflies (Lepidoptera : HesperIIDae, LycaenIDae, NymphalIDae) from Papua New Guinea and Irian Jaya

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Abstract A new nymphalid genus, *Altiapa* (Satyrinae), and twenty-six new species of butterflies from Irian Jaya and/or Papua New Guinea, comprising seventeen hesperiids, seven lycaenids, and two nymphalids, are described and illustrated. These are arranged systematically as follows: HesperIIDae (HesperIIDae) — *Prada maria*, *Pastria grinpela*, *Kobrona sebana*, *K. zadma*, *K. lexa*, *K. sota*, *Sabera madrella*, *Mimene celiaba*, *M. saribana*, *M. ozada*, *M. verda*, *M. wara*, *Ocybadistes zelda*, *Telicota bulwa*, *T. sadrella*, *T. brandti*, *T. mimena*; LycaenIDae (Miletinae) — *Spalgis asmus*; (Lycaeninae) — *Arhopala doreena*, *Candalides afretta*, *Ionolyce selkon*, *Catopyrops zyx*, *C. holtra*, *Udara davenporti*; NymphalIDae (Satyrinae) — *Mycalesis giamana*, *Platyphima antapa*. *I. selkon* and *C. zyx* are recorded from Bougainville Island, and *C. holtra* from the island of New Britain, both localities in Papua New Guinea. Five species (*M. celiaba*, *T. sadrella*, *S. asmus*, *A. doreena*, *M. giamana*) are recorded from Irian Jaya as well as Papua New Guinea. The remaining species are, to date, only recorded from Papua New Guinea. In addition the status of two previously described species are revised (stat. nov.). These are *Udara kodama* ELIOT and KAWAZOÉ, 1983 (LycaenIDae, Lycaeninae) and *Platyphima septentrionalis* NIEUWENHUIS and HOWARTH, 1969 (NymphalIDae, Satyrinae).

Introduction

Taxonomic study of New Guinean butterflies reached a peak in the late 1800s to early 1900s when earlier authors, most notably FRUHSTORFER, GROSE-SMITH, ROTHCHILD and JORDAN, began to describe much of the new material that collectors were sending back to Europe. Several researchers (e.g. VANE-WRIGHT, 1976 and MILLER and MILLER, 1978) have, more recently, continued this work. Of these SIBATANI and SANDS (e.g. SIBATANI, 1974 and SANDS, 1979, 1981) have, independently, made the LycaenIDae the focus of their attention. This has helped redress the balance of study which, in the past, has been somewhat biased in favour of the butterfly families which contain larger, more conspicuous members. Until now, however, the HesperIIDae of the New Guinean region have not been studied in detail since EVANS' (1949) revision.

During an extensive survey of the butterfly fauna of Papua New Guinea (PNG) for their inclusion in a monograph on the butterflies of that country (PARSONS in prep.), I prepared detailed notes on a number of new taxa. The results given here are also based on four years of collecting and ecological field study of butterflies whilst

working for the PNG government (1979 – 1983).

Inevitably the majority of species that are described here belong to the HesperIIDae and LycaenIDae. These two families are most often overlooked by collectors because of their small size, usually unremarkable appearance, and similarity to other members within their respective groups. There are, however, also two members of the NymphalIDae (Satyrinae) that have, until now, been overlooked. Careful study has also shown that a new genus must be erected for one group of indigenous New Guinean satyrines.

Including the new taxa described herein, the number of known butterfly species to be found within PNG is approximately 820, with about 100 additional species known from Irian Jaya (the Indonesian western half of mainland New Guinea). This compares to the 383 species known from Australia, and approximately 380 species from the whole of Europe. The Papuan subregion of the Melanesian region, because of its geographical position, abrupt, mountainous terrain, and myriad offshore islands, has become a major centre of endemism for much of its fauna. As ELIOT (1973) points out, “many of the LycaenID groups probably evolved explosively from ancestors no longer identifiable or extinct in other areas. During the low sea levels of the Pleistocene the invasion of S. E. Asian butterflies must have continued at an increased rate, and many species confined in Australia to N. E. Queensland must have arrived during this period.”

Many New Guinean butterfly genera endemic to montane habitats include large numbers of species which conform well to MAYR's (1963) descriptions of sibling or semispecies. Good examples of such genera are *Delias* (PierIDae) and *Philiris* and *Hypochrysops* (LycaenIDae). The similarities among the members of such genera has led to many of them being overlooked by taxonomists in the past, so that only very recently have specialists begun to classify the remaining taxa (e.g. *Delias* ORR and SIBATANI, 1985, *Philiris* SANDS, 1979, 1981, *Hypochrysops* SANDS, in prep.). Several of the species described below could be classed as siblings of previously described species, overlooked due to their great similarity to known taxa. Very good examples of such species are to be found in the genus *Telicota* (HesperIIDae).

Amongst the collectors of material on which recent studies have been based, the late William BRANDT has been the most thorough and outstanding. He was responsible for the magnificently pristine collection of PNG butterflies now housed in the Australian National Insect Collection (ANIC) at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Canberra, Australia. The collection includes many rare and previously unknown species. The fine series of a new *Ocybadistes* and one of the new species of *Telicota* (both HesperIIDae), described here, are indicative of his thoroughness and patience in the field; few other collectors have taken even a small percentage of the numbers of these two species represented in his collection.

For sake of brevity, full ecological details of various species described here are not included. These will be given in the work by PARSONS (in prep.) which will also include colour illustrations of all the taxa figured here. The wing structure

terminology used here is that illustrated by COMMON and WATERHOUSE (1981 : 14). The figures of genitalia (except for four drawn from BRANDT's slide preparations), are drawn 'wet' from preparations preserved in glycerol. For most species the male genitalia are completely illustrated but the figures are not annotated. For those that are complete the format is as follows: The aedeagus is sometimes shown in situ, as well as separated from the genitalia. The whole genitalia are shown from the lefthand side in lateral profile (uncus directed to the right; except upwards in the Lycaenidae). To the right of this is the uncus in dorsal profile. The juxta is shown in ventral profile and the aedeagus is depicted in lateral (also sometimes dorsal) profile, with its distal aperture to the right. The separated right valva is shown for most species and depicts the details of its inner lamina; its apex (distal end) to the right. For the Lycaenidae details of the whole genitalia from a ventral aspect are shown in order to better clarify their morphology. Unless they are considered to be an important morphological character all setae have been omitted in these figures, for sake of clarity. However, it may be assumed that the uncus and valvae, from the median region to the apex of both, are hirsute with fairly long setae in all species. All of the male genitalia figures are shown to the same scale (bar given below Fig. 18), unless a scale-bar below part of a particular figure indicates otherwise. The female genitalia figures are not annotated as details are given in the text. All are drawn to the same scale (bar given below Fig. 58). Any important morphological characters of the genitalia are discussed in the 'diagnoses' sections.

The following abbreviations are used for institutions and collections: BMNH, British Museum (Natural History), London, England; ANIC, Australian National Insect Collection, Canberra, Australia; AMS, Australian Museum, Sydney, Australia; KONE, National Insect Collection, Konedobu, Port Moresby, Papua New Guinea; IFTA, Insect Farming and Trading Agency, Bulolo, Papua New Guinea; RML Rijksmuseum Van Natuurlijke Historie, Leiden, Netherlands; BBMH, Bernice P. Bishop Museum, Honolulu, Hawaii, U. S. A; CAS, California Academy of Sciences, San Francisco, California, U. S. A; AME, Allyn Museum of Entomology, Sarasota, Florida, U. S. A. Numbers given in the text thus: 19/35 refer to the forewing length and wingspan of a specimen, the abbreviations of which are, respectively, FWL and WS. Where New Guinea is mentioned in the text then this refers to the whole of the mainland, the western half of which is politically part of Indonesia and is now known as Irian Jaya, and the eastern half of which is now part of the independent state of Papua New Guinea, abbreviated here as PNG. New Guinea lies immediately to the north of Australia and the much smaller islands of New Britain and Bougainville are situated to its east, being part of PNG. Mt. Kaindi, a locality frequently mentioned in the text, is usefully clarified here. It is well known to butterfly collectors because of its interesting montane fauna, being particularly rich in *Delias* species (Pieridae), for example. Mt. Kaindi is located immediately southwest of the town of Wau in the Morobe Province of PNG and is serviced to its summit (2388 m), where there is a repeater station, by a dirt track road across which many streams flow at intervals and

where many butterflies congregate.

The systematic order followed below is based, for the HesperIIDae, on EVANS (1949), the LycaenIDae, on ELIOT (1973), and the NymphalIDae (Satyrinae), on MILLER (1968).

HesperIIDae (HesperIinae)

To date ten of the new hesperiids described here are unique specimens. They are, however, mostly very distinct species so that little difficulty should be experienced in assigning future specimens to them. Most likely such species are rarely collected because they are arboreal in habit. Their females (usually the less frequently encountered sex of most butterfly species) are likely to be very similar to the males, as is usual in the HesperIIDae, but will lack any sex brand that is present in the male and will probably have more rounded wings.

Prada maria new species (Figs. 23, 65 – 66)

Holotype male Antennal length 11.0 mm, black, pale yellow ventrally on club and apiculus extends to apex of shaft; head with a basal line of orange-brown hair scales, a band of short black scales runs between the eyes, a band of orange-brown above this, a broad band of black hair scales runs between the antennal bases with a pale orange line between this and the frons which is white with two tufts of black hair scales; palpi white, tipped with black; thorax black, ventrally white, metathorax dorsally overlain with long pale grey-brown hair scales, dorsolateral prothoracic tegulae dark brown, fringed with white; abdomen black dorsally, white ventrally; legs yellowish-white, femora of forelegs with long white hair scales ventrally, tibiae of mid and hindlegs with long yellowish-white hair scales dorsally. FWL 17.5 mm (WS 33.0 mm), costa straight, termen slightly convex; upperside dark brown with a coppery or mauve sheen (in strong light at certain angles), unmarked, sex brand absent; underside basal half of wing dark brown with a pinkish-mauve sheen, costa pale yellow-grey, apex to discocellulars, and diagonally to termen at vein CuA₂, pale pinkish-grey with a mauve sheen, cell apex dark purple with a bright yellow band below this which extends into a suffusion of yellow scales between veins CuA₂ and CuA₁ and at the junction of vein M₃ with the cell, a small submedian patch of diffuse pale yellow scales centred between veins 1A+2A and CuA₁, some coppery-brown scales above cell apex between the radial veins, a subbasal tuft of long, very pale brown hair scales on the inner margin (probably androconial in function). Hindwing elongate, rounded; upperside dark brown with a large, median, bright yellow spot, some yellow scales along cubitus of cell, costa with a broad ovate patch of cream scales; underside pale pinkish-grey, suffusing to pinkish-brown at termen, basally creamy-grey with a somewhat irregular cream median band which just enters the cell

apex, median band mostly encircled by brown and the veins which cross it are pinkish-grey, either side of the band, basally, there are a few dark purple scales. Cilia of forewing dark grey; hindwing with a dark grey basal layer and longer dark yellow-brown scales.

Types — Only the *holotype* ♂, On foot track Nr. Angai Village, Via Kaintiba, Gulf Province, Papua New Guinea, 1600 m, Daniel Nou, May 1982, Grid Sq. CM 77, 73. (Genitalia vial No. BMNH (v) 1064), in BMNH.

Diagnosis A distinctive species very different from the other three members of its genus. It is the only *Prada* with pinkish-mauve wing scaling and white palpi. The others are all variously coloured (see below) and possess yellow palpi. The male genitalia (Fig. 23) are also very distinct, especially the large and completely ovate uncus with its darkened areas. These areas presumably represent vestiges of the prominent lobes to be found on the uncus of *Prada rothschildi* (EVANS, 1928). The uncus of *P. papua* (EVANS, 1928) is simple, elongate, beak-like and has a slightly hooked tip.

Comments Until now *Prada* contained only three species, according to EVANS (1949). All of the earlier named members of this genus are very different from each other, and *P. maria*, in both their appearance and the morphologies of their male genitalia. *P. rothschildi* is dark brown with wings that are predominantly marked with iridescent pale blue, and there is a large cream patch that covers the upper half of the hindwing underside. It is the only species whose male has a large sex brand and tuft in the subbasal region of its hindwing upperside. *P. papua* is dark brown with an intense purple sheen underside and is patterned on both sides of its wings with yellow spots. *P. rawlinsonia* EVANS, 1949 is dark brown with faint yellow markings on the upperside of its wings and broad pure white markings across the underside of its forewing apex and hindwing.

The genus *Prada* will be discussed at much greater length by PARSONS (in prep.) but a brief outline will serve to indicate the paucity of material that represents this very interesting genus. *P. papua* is known from only six male specimens. Conversely the three known specimens of *P. rawlinsonia* are all females. *P. rothschildi* is the only species that is represented by both sexes but there are only three males and one female known. *P. maria* is known only from its unique male. Apparently no specimens of *Prada* have been collected from Irian Jaya but it is very likely that some of the above mentioned species occur there. Probably there are other new and distinctive members of the genus that await discovery on the mainland, particularly in the mountains of the central dividing ranges.

Pastris grinpela new species

(Figs. 1, 14–18, 67–74)

Holotype male Antennal length 10.0 mm, shaft black with cream at base of each segment, club black (refracting turquoise at certain angles), cream ventrally, apiculus dark red suffused with black; head and frons olive-green, palpi pale olive-green,

tipped with black, basally white; thorax black dorsally, ventrally pale turquoise-green, dorsolateral prothoracic tegulae olive-green; abdomen (before removal for dissection) dark brown, laterally with a suffusion of olive scales, ventrally creamy white; legs olive-green, tarsi dark brown dorsally, ventrally pale orange. FWL 16.5 mm (WS 31.0 mm), costa slightly concave, termen convex; upperside dark brown, olive-green subbasally and along basal half of costa, postmedian, inner marginal, and cell bands pale greenish-yellow; underside similar to upperside but apex is broadly olive-green, the inner marginal band is absent and the postmedian and cell bands are cream. Hindwing apex convex, base of termen concave so that the tornus is pronounced; upperside dark brown with a greenish-yellow band and spot at cell apex, inner margin and subbasal areas of wing with a sparse covering of long olive-green hair scales; an arrangement of androconial scales (Fig. 1) consisting of a tuft of long brown hair scales which arise from inside the radial sector of the cell to overlap a somewhat triangular sex brand of glossy, fairly tightly packed, black scales that fill the area at the junction of vein CuA_2 with the cubitus of the cell and enter the cell base; underside olive green except for a dark brown tornal patch and diffuse cream spot midway above vein $1A+2A$, the cell spot and median band show through faintly from the upperside. Cilia of forewing dark grey; hindwing with basal layer grey and longer outer layer of creamy-white scales.

Allotype female Antennal length 10.0 mm. In all details very similar to holotype male but without androconia and, because of its age, the colours are somewhat faded, especially the olive-green of the underside which is yellowish-brown. FWL 19.0 mm (WS 37.0 mm); the wings, especially at the forewing apex, more rounded than the male and the markings are slightly broader.

Types — 22 ♂♂, 2 ♀♀. *Holotype* ♂, Namie Creek, Mt. Kaindi, Wau, Morobe Prov., PNG., M.J. Parsons, 11-2-1982, I.F.T.A. coll. Alt. 1700 m. (Genitalia vial No. BMNH (v) 1224); *allotype* ♀, St. Joseph R. Brit. N. G. 6000, 2.05.; *paratypes* 1 ♂ with same label data as holotype (genitalia vial No. BMNH (v) 1097); 1 ♂ with same label data as holotype but Dec. 1982; 1 ♂, Kunai Creek, Mt. Kaindi, Wau, Morobe Prov., PNG., T. B. Larsen, I. F. T. A. coll. Alt. 1500 m.; 1 ♂, Denglagu, Chimbu Prov., PNG., Peter Ba, June 1982, I. F. T. A. coll. Alt. 2400 m. (Genitalia vial No. BMNH (v) 1098); 1 ♂, Pap Creek, Mt. Hagen Range, Western Highlands Prov., PNG., C. Davenport, 14-11-1982, I. F. T. A. coll. Alt. 1900m. (Genitalia vial No. BMNH (v) 1099), in BMNH; 1 ♂, 1 ♀, respectively B 5/3 and B 10/4 (i.e. requiring the following label data: NEW GUINEA, Tapini, Loloipa River, Bome, 6200 ft; 25 Feb. – 2 May 1958, W. W. Brandt.); 1 ♂, NEW GUINEA, Nondugl (Central Highlands) 5500 ft; December 10 1950. Collected by Wm. Brandt, E.J.L. Hallstrom.; 2 ♂♂, 8600 ft. (i.e. requiring the following label data: NEW GUINEA, Western Highlands, Mt. Hagen Range, Murmur Pass, 8600 ft; 27.10 – 20.12.1961, Brandt. (One with genitalia vial No. ANIC MJP 003); 1 ♂, 9200 ft. (i.e. requiring the following label data: NEW GUINEA, Eastern Highlands, Mt. Wilhelm, Pengal River, 9200 ft; 16.5 – 9.6. 1963, W. W. Brandt.). (Genitalia vial No. ANIC MJP 004); 2 ♂♂, Mt. Kaindi. 2400 m, Morobe Prov. PNG; 3 April 1977, D. SANDS.; 9 ♂♂, NEW GUINEA, Kodama Range, Mt. Kaindi, 5500 ft.

(various dates between December 1951 and February 1952). Collected by Wm. Brandt, Sir Edward Hallstrom., in ANIC.

Diagnosis Very closely related to its sister species *Pastria pastria* EVANS, 1949. It differs from that species, however, in several important characters. Males are larger, averaging 17/34, whereas *P. pastria* is usually 16/32. The ground colour of the forewing apex and hindwing underside is dark olive-green in *P. grinpela* but pale creamy-grey (EVANS says greenish-grey, *sic!*) in *P. pastria*. The subternal region of the hindwing underside is black but this is greyish-white in *P. pastria*. In *P. grinpela* the cell marking of the forewing upperside is always distinct, whilst in *P. pastria* it is always obscure. The hindwing sex brand (Fig. 1) is black in *P. grinpela*, grey in *P. pastria*. Generally the yellow markings of the upperside of *P. pastria* are paler than those of *P. grinpela* and its red antennal apiculus is usually more obvious. The uncus and valvae (Figs. 14–18), are longer than those of *P. pastria* and the distal margin of the valva is usually not as deeply serrated as that of *P. pastria*.

Comments Until now *Pastria* contained only two species, according to EVANS (1949). *Pastria albimedia* (JOICEY and TALBOT, 1917), unlike the other members of its genus, is distinctive because its hindwing is marked with a broad white band. The species is only known by two males from the Wandammen Mountains of western Irian Jaya. *P. grinpela* has undoubtedly been overlooked due to its close similarity to its sister species *P. pastria*. This is borne out by the fact that BRANDT, for example, labelled all of his specimens of *P. grinpela* as *P. pastria*, and EVANS (1949) placed a female (here designated as the allotype of *P. grinpela*), as the supposed female of *P. pastria*.

P. grinpela and *P. pastria* are mid-high altitude montane species that are sympatric on Mt. Kaindi; a locality where I first noted their morphological differences but very similar ecologies. At that locality males of both species fly together at creeks in strong sunlight from 1500–1900 m altitude. Of the two species *P. grinpela* is by far the better represented in collections as it is apparently more commonly encountered than *P. pastria*. I took two males of *P. pastria* on Mt. Kaindi (one now in the BMNH, one in IFTA), and one (IFTA coll.) at Telefomin (West Sepik Province, PNG). There are two further males in the Wau Ecology Institute collection (Wau, PNG), and three in the private collection of Mr T. DAVIES (California, U. S. A.). Prior to the addition of the second male (*ex.* IFTA) to the BMNH, only the holotype male of *P. pastria* existed in that institution. Although BRANDT collected 27 specimens of *P. grinpela* at various localities throughout mainland PNG, the majority (21) were from Mt. Kaindi. His collection contains no *P. pastria*. Altogether, approximately 36 specimens (which include two females), of *P. grinpela* have been collected to date, but only about 9 male specimens of *P. pastria*, so the female of this species has yet to be discovered.

Although it is widely distributed throughout mainland PNG (and probably also, therefore, mainland Irian Jaya), *P. grinpela* exhibits little geographical variation. The unci and valvae of the genitalia of males do, however, vary somewhat (Figs. 14–18) but, as studies of the Mt. Kaindi populations have shown, the valvae of both *P. grinpela* and *P. pastria* are individually fairly variable, especially in the profile of the distal

margin. For example, the valvae of the holotype of *P. grinpela* (Fig. 14) are somewhat narrower at their distal margin, than usual. (Compare with figures 16 – 19).

From studies of older museum material of *P. grinpela* it is clear that a certain amount of fading of its olive-green colour takes place. As this happens the species increasingly comes to resemble the much paler *P. pastria*. In the field, worn specimens of *P. grinpela* take on a similar appearance with the gradual loss of the olive-green scales of the underside, especially from the hindwing. This should be noted to avoid confusion in separating the two species.

It should be pointed out here that EVANS (1949) overlooked an important generic character in his brief description of *Pastria* which, he stated, has the male “without stigma or brands”. As illustrated in figure 1 of the hindwing upperside of *P. grinpela*, the genus does, however, possess androconia in the male, although there is not a forewing sex brand as is usual in many other hesperiid genera. These are absent in the female. The hindwing scent scales are detailed in the description of *P. grinpela* above. The hair tuft probably helps to disperse pheromones produced in the region of the scent brand below it. Males of *P. pastria* and *P. albimedia* have very similar arrangements of androconial scales and a not too dissimilar arrangement is found in the male of *Prada rothschildi* (EVANS, 1928).

***Kobrona sebana* new species**

(Figs. 2, 19, 75 – 76)

Holotype male Antennal length 10.5 mm, shaft black, ventrally with sparse pale yellow scales at base of each segment, club black, ventrally pale yellow, apiculus black; head black, palpi pale orange-yellow with some black scales; thorax dark brown dorsally, pale orange-yellow ventrally; abdomen (before removal for dissection) dark brown dorsally, each segment edged distally with orange-brown, ventrally pale yellow. All legs (except one foreleg) are minus their tibiae; coxa and femur predominantly dark brown with some orange scales, tibia and tarsus mainly orange with some dark brown scales. FWL 16.0 mm (WS 31.5 mm), costa slightly concave, termen convex; upperside very dark brown (appears black without magnification), postmedian band yellow, base of costa and cell with suffusion of orange and yellow scales, subapex with three orange spots, inner marginal band pale yellow; sex brand (Fig. 2) dark grey-brown (appears black without magnification), parallels proximal margin of postmedian band and is enclosed basally by it, consisting of densely packed, hair-like androconial scales; underside dark brown, almost black, costa orange basally, apical half of the wing orange-brown so that the subapical markings are indistinct, cell apex and postmedian band yellow. Hindwing apex convex, termen concave basally so that tornus is pronounced; upperside very dark brown, median band yellow; underside costa, termen and inner margin at base orange-brown, subbasal area pale brown, median band pale orange bordered with black, ending basally as a yellow spot above vein 1A+2A, tornus orange-yellow, subternally dark brown. Cilia of forewing dark brown with a suffusion of yellow scales from mid

termen to tornus; hindwing pale orange-yellow.

Types — Only the *holotype* ♂ (CAS Type Reg. No.15224), New Guinea: Morobe District, Minhi creek, near Manki Village, Watut Valley, 1900 m, 15-VIII-1973, P.J. & M.C. Shanahan. (Genitalia vial No. TWD MJP 004), in CAS.

Diagnosis The largest species of its group (16/31.5). The only other species of its genus that is larger is *Kobrona eva* EVANS, 1935 (17/34.5). The nearest relatives to *K. sebana* appear to be *K. pansa* EVANS, 1934 and *K. edina* EVANS, 1949 but *K. sebana* has a more extensive yellow hindwing tornus underside. Its male genitalia (Fig. 19) closely resemble those of *K. denva* EVANS, 1949 but the uncus is distally broader and the distal margin of the valva is less deeply excavate.

***Kobrona zadma* new species**

(Figs. 3, 20, 77 – 78)

Holotype male Antennal length 8.0 mm, shaft dark brown, cream at base of each segment, club dark brown, ventrally pale yellow, apiculus orange-brown; head dark brown with some yellow scales, frons dark brown with longer, refractive hair scales that reflect mainly pale turquoise; palpi pale yellow, peppered and tipped with dark brown; thorax dark brown, ventrally grey with longer pale yellow hair scales, dorsolateral prothoracic tegulae dark brown fringed with greenish-yellow; abdomen (proximal, uncut, half) dark brown, ventrally with some pale yellow scales; legs (only forelegs remaining) dark brown, ventrally white. FWL 12.5 mm (WS 26.0 mm, but forewings have dropped somewhat), costa slightly concave, termen convex; upperside dark brown, a suffusion of pale yellow scales subbasally and along costa base (also with an indistinct turquoise or coppery sheen at certain angles), cell apex with a few pale yellow scales, inner marginal band and narrow postmedian band pale yellow; sex brand (Fig. 3) darker brown than wing, consisting of densely packed, raised, hair-like androconial scales directed towards termen; underside dark brown with a coppery-orange sheen broadly at apex extending along the termen to tornus, basal half of costa orange, inner marginal band absent, postmedian band creamy-yellow, broader than above, cell apex pale yellow. Hindwing apex convex, termen slightly concave so that tornus is pronounced; upperside dark brown, some long pale yellow hair scales subbasally, median band creamy-yellow, a few pale yellow scales inside the cell; underside dark brown with a coppery-orange or purple sheen (depending on angle viewed), unmarked except for a patch of paler turquoise to orange refractive scales at the cell apex and a diffuse patch of creamy-yellow scales centrally, either side of vein 1A+2A, and diffuse at tornus. Cilia of both wings dark grey with some creamy-white scales at tornus.

Types — Only the *holotype* ♂ (ANIC Type Reg. No.2363), NEW GUINEA, Nondugl (Central Highlands) 5500 ft. November 22 1950. Collected by Wm. Brandt, E. J. L. Hallstrom. (Genitalia slide No. ANIC Brandt 626), in ANIC.

Diagnosis The smallest species of its genus (FWL 12.5 mm). Males of other small species in its group usually average FWL 13 – 15 mm. *K. zadma* is recognisable

by its very reduced wing markings and male genitalia (Fig. 20). Its uncus is most like that of *Kobrona edina* EVANS, 1949 but it is distally shorter and broader than in that species. Its distally rounded valvae are more similar to those of *K. vasna* EVANS, 1935 and are not distally excavate as in *K. edina*.

***Kobrona lexa* new species**

(Figs. 4, 21, 79–80)

Holotype male Antennal length 8.5 mm, shaft dark brown, almost black, cream at base of each segment ventrally, club dark brown, almost black, ventrally pale yellow, apiculus red-brown, ventrally dark brown; head and frons dark brown overlain with long hair scales that refract pale green and pale yellow; palpi pale yellow, peppered and tipped with dark brown; thorax black, ventrally with long grey hair scales, dorsolateral prothoracic tegulae dark brown fringed with long pale yellow hair scales; abdomen (before removal for dissection), dark brown, ventrally segments fringed with pale yellow, increasing distally to almost entirely pale yellow at abdomen tip; legs dark brown, tibiae and tarsi cream ventrally. FWL 13.5 mm (WS 26.0 mm), costa slightly concave, termen convex; upperside dark brown, a suffusion of pale yellow scales subbasally and along base of costa, two spots at cell apex, inner marginal band, a narrow postmedian band and three subapical spots (separated by dark brown radial veins), all pale yellow, the subbasal and inner marginal markings overlain by long pale yellow hair scales; sex brand (Fig. 4) darker brown than wing (almost black), consisting of densely packed, raised, hair-like androconial scales directed towards termen; underside dark brown basally, apical half of wing (diagonally to tornus), paler brown, basal two thirds of costa orange, inner marginal band absent, cell spots joined and subapical spots suffused with orange, otherwise markings as upperside. Hindwing apex convex, termen almost straight, tornus slightly pronounced; upperside dark brown, some long pale yellow hair scales subbasally, especially along vein $1A+2A$, rest of basal two thirds of wing overlain with long dark brown hair scales, median band pale yellow; underside dark brown with a pale mauve sheen, a portion of the wing between vein $3A$ and a straight line running midway between veins $1A+2A$ and CuA_2 , dark brown with a sparse suffusion of pale yellow scales and lacking any mauve sheen, median band divided below vein CuA_2 forming a separate bright yellow spot midway above vein $1A+2A$, the remainder of the median band pale orange and edged with dark purple, a central cell spot and apical spot, between veins R_s and $Sc+R_1$, orange edged with dark purple. Cilia of both wings grey-brown, suffusing to pale creamy-yellow at tornus of hindwing.

Types — Only the holotype ♂ (ANIC Type Reg. No. 2364), Tapini. Cent. P. PNG. 27 Aug. 76., D. SANDS, 1400 m. alt. (Genitalia vial No. ANIC MJP 082), in ANIC.

Diagnosis Similar to *K. zadma* but more broadly and extensively marked with pale yellow. *K. lexa* has male genitalia (Fig. 21) that closely resemble those of the much larger and distinctly *Sabera*-like *Kobrona eva* EVANS, 1935 but its uncus and valvae are slightly narrower (in, respectively, dorsal and lateral profiles), and its aedeagus is broader.

***Kobrona sota* new species**

(Figs. 22, 81 – 82)

Holotype male Antennal length 8.5 mm, shaft and club dark brown, almost black, orange ventrally, apiculus red-brown; head and frons dark brown, a ridge of long orange and dark brown hair scales between antennal bases; palpi orange suffusing to paler creamy-orange basally, dorsally tipped with dark brown; thorax dark brown peppered with orange, dorsolateral prothoracic tegulae and ventral surface densely overlain with orange hair scales; abdomen (before removal for dissection) orange but dorsally with some black which decreases distally; legs orange. FWL 13.5 mm (WS 27.0 mm), costa straight, termen convex; upperside, including leading edge of costa and a narrow terminal line, dark brown, costa and cell (except cell apex), broadly orange, postmedian and inner marginal bands joined above vein 1A+2A, three subapical orange spots lie between the costal and postmedian bands; sex brand absent; underside dark brown basally, apical half (diagonally to tornus), orange, costa orange, cell dark brown basally, apically pale orange, discocellulars dark brown, postmedian band pale orange, subapex with three diffuse dark brown spots. Hindwing costa and termen convex, tornus slightly pronounced; upperside dark brown, cell with apical orange spot and wholly overlain with long orange hair scales, similar scales overlies area between veins 3A and CuA₂, median band obscure, pale orange, defined at its proximal and distal margins by very diffuse dark brown spots between the veins, tornus to base pale orange, centrally suffused with dark brown in a line running between veins 1A+2A and CuA₂. Cilia of forewing dark brown with orange between veins, increasing to wholly orange at tornus; hindwing orange.

Types — 2 ♂♂. *Holotype* ♂ (ANIC Type Reg. No. 2365), NEW GUINEA Angoram, (Sepik District) 20 ft. May 1, 1950. Collected by Wm. Brandt, E. J. L. Hallstrom. (Genitalia vial No. ANIC MJP 076); 1 unset *paratype* ♂ with same label data, but without May 1. (Genitalia slide No. ANIC Brandt 625), in ANIC.

Diagnosis Closely related to *Kobrona mirza* EVANS, 1934 but slightly smaller and with broader, slightly darker, orange markings upperside. Both species lack the sex brand normally present in *Kobrona* males. The hindwing median band of the upperside of *K. sota* is more ovate than that of *K. mirza* and its distal margin is not produced along the veins towards the termen as in that species. Underside the bands of both its wings are obscure, whereas those of *K. mirza* are prominently outlined with dark brown. *K. sota* has distinct male genitalia (Fig. 22). Its uncus is much broader distally than that of *K. mirza*. Its valva is convex along its ventral margin, whereas in *K. mirza* the valva is slightly concave ventrally along its distal half. The valva of *K. mirza* is larger, more triangular, and basally broader than that of *K. sota*, the distal apex (formed by the outer lamina) elongate and well rounded, not short and with two points as in *K. sota*.

Comments Until now *Kobrona* contained 14 species, according to EVANS (1949). All have distinctive wing patterns and colours. The sex brands (absent in some species), and genitalia of the males are also particularly useful characters by which

species may be identified. It is interesting that *K. sebana* is the fifth member of a closely related group of mid-high altitude species that includes *pansa* EVANS, 1934, *denva* EVANS, 1949, *edina* EVANS, 1949, *vanda* EVANS, 1949, all of which are known to fly on Mt. Kaindi in the Morobe Province of PNG. Like *K. sebana* all, except *K. pansa*, were described from this locality (Edie Creek, which is very near Mt. Kaindi). *K. pansa* was described from a single male from the Weyland Mountains of Dutch New Guinea (now Irian Jaya), but later a distinctive subspecies, *K. p. panta* EVANS, 1949 was described from Edie Creek specimens. To date *K. sebana* and *K. vanda* are known only by their unique holotype males and *K. denva* by its holotype and another male from its type locality. *K. edina* and *K. pansa* are recorded from far more widespread localities.

From its appearance and the morphology of the uncus of its male genitalia, *K. zadma* appears to be a member of the above mentioned *pansa* group. Externally *K. lexa* is very similar to *K. zadma*. It is an interesting species in that its uncus and valva most closely resemble those of the much larger and very *Sabera*-like *K. eva*. The male genitalia of *K. eva* are also not too dissimilar from these of *Kobrona rasta* EVANS, 1935, so the taxonomic position of these two species can be reconciled, with the addition of *K. lexa*, to stand closer to the *pansa* species group than assumed by EVANS (1949).

K. sota belongs to a group of species that were placed by EVANS (1949) at the end of his arrangement of *Kobrona*. Besides *K. mirza* the group contains *K. infralutea* (ROTHSCHILD, 1916) and *K. tabella* EVANS, 1935. The four species of this group are mainly characterised by their brownish-orange undersides and the similar valvae of their male genitalia. The similarity of *K. sota* to *K. mirza* led BRANDT to label *K. sota* as *K. mirza* in his collection. It should also be noted that *K. sota*, in general size and pattern (especially that of its upperside), resembles the New Guinean *Cephrenes carna augusta* EVANS, 1934, but its markings are of a darker orange.

Sabera madrella new species

(Figs 5, 24, 83 – 84)

Holotype male Antennal length 12.5 mm, shaft black, ventrally pale yellow, apiculus dark red-brown; head and frons with scales that refract mainly pale turquoise and orange, cream adjacent to eye margins; palpi pale orange, tipped with dark brown, basally cream; thorax dark brown overlain dorsally by dark orange hair scales, dorsolateral prothoracic tegulae dark brown, fringed with pale yellow; abdomen (before removal for dissection), dark orange-brown dorsally with orange on distal edges of segments, ventrally wholly orange; legs dark brown blotched with orange, ventrally creamy-yellow. FWL 20.5 mm (WS 41.0 mm), costa slightly convex, termen convex; upperside dark brown with diffuse yellow scales subbasally and along the radial sector of cell, inner marginal band, postmedian band, and two subapical spots are yellow; sex brand (Fig. 5) grey-brown, consisting of six separate spots of short, densely packed, hair-like androconial scales; underside dark brown subbasally,

costa and apex to half wing area are orange, inner marginal band absent, postmedian band yellow, spot at cell apex and three subapical spots orange. Hindwing apex convex, termen slightly concave so that tornus is pronounced; upperside dark brown with long yellow hair scales subbasally and a yellow median band; underside purple-brown, tornal area dark brown suffused with orange, median band dark orange, faintly edged with black and ending basally as a spot of yellow above vein 1A+2A, cubitus of cell dark brown. Cilia of forewing dark grey with a tornal suffusion of greyish-yellow scales; hindwing with a basal layer of dark grey scales from apex to mid-termen and some grey scales tornally, otherwise longer yellow scales run entire length of termen.

Types — Only the *holotype* ♂ (ANIC Type Reg. No. 2366), Kiunga (*i.e.* requiring the following label data: NEW GUINEA, Kiunga, Fly River. 2 July – 31 Oct. 1957, W. W. Brandt.). (Genitalia vial No. ANIC MJP 020), in ANIC.

Diagnosis Closely related to, but notably larger (20.5/40) than, *Sabera dorena* EVANS, 1935 (19/38). *S. madrella* is very similar in colour and pattern to *S. dorena* but has a more clearly defined postmedian band on the hindwing underside which is not as heavily suffused with purple-brown scales as in *S. dorena*. The tornal region of the hindwing underside of *S. madrella* is of a brighter, slightly more extensive yellow than in *S. dorena* and the overall ground colour of the wing is of a paler hue of purple-brown than the dark purple-brown of *S. dorena*. The male genitalia of the two species exhibit more distinctive differences. *S. madrella* has an uncus (Fig. 24) which is not as long and tapered as that of *S. dorena*. The dorsal spur of the median region of its valva is thumb-like and is the longest and slimmest of its genus, whereas that of *S. dorena* is relatively short.

Comments Until now *Sabera* contained 11 species, according to EVANS (1949). *S. madrella* is a member of the *Sabera dobboe* (PLÖTZ, 1885) species group, standing closest to *S. dorena*. All members of this group closely resemble *Mimene kolbei* (RIBBE, 1899) and *Cephrenes augiades bruno* EVANS, 1935, although their male genitalia are obviously different from those two species. In particular *S. madrella* resembles *M. kolbei* because of its large size. It may be separated from *M. kolbei* and *C. a. bruno* by its more reduced forewing cell streak underside (which is a complete spot in the latter two species). *S. madrella* also has a straighter, narrower hindwing band than in those two species and differs from *C. a. bruno* in that its subtornal region is brown, not black as in *bruno*.

Mimene celiaba new species

(Figs. 6, 25, 85 – 88)

Holotype male Antennal length 14.0 mm, shaft dark brown, almost black, club dark brown, ventrally white, apiculus dark red-brown; head with white adjacent to eye margins and basally below a tuft of long hair scales which refract pale turquoise and orange, a group of similar scales at base of the antennae, a band of dark brown runs centrally between the eyes with cream each side of this behind the eye margins, frons with short dark brown scales; palpi white, peppered and tipped with dark

brown; thorax dark brown, grey-brown ventrally, metathorax overlain by long orange hair scales, dorsolateral prothoracic tegulae dark brown fringed with greenish-yellow; abdomen (before removal for dissection) dark brown overlain dorsally by long orange hair scales at its base, segments distally fringed with some orange scales, ventrally segments at tip fringed with greyish-white; legs dark brown, white ventrally at femur bases, tibiae and tarsi pale orange ventrally. FWL 19.5 mm (WS 39.5 mm), costa straight, termen slightly convex at apex, otherwise straight; upperside dark brown marked with pale orange, consisting of a streak at base of costa, an inner marginal band and a median band which extends to wing base through a subbasal region of diffuse pale orange scales and longer hair scales; sex brand (Fig. 6) dark brown, almost black, consisting of five separate spots of short, densely packed, hair-like androconial scales; underside dark brown with a very faint purple sheen in direct light, a small pale yellow streak inside the cell apex running parallel to cubitus, all other markings absent except for a broad median patch of yellow scales above vein CuA_2 , pale yellow below it. Hindwing fairly elongate, apex convex, termen straight, only slightly concave at base so that tornus is pronounced; upperside dark brown with long pale orange hair scales subbasally extending halfway along inner margin and completely covering cell, median band consists of a diffuse rounded patch of pale orange overlain by longer pale orange hair scales and divided by dark brown veins; underside dark brown, unmarked except for a small yellow spot centrally between veins $1A+2A$ and CuA_2 . Cilia of both wings dark grey apically, suffusing to a mixture of dark grey and orange-yellow by mid-termen.

Allotype female Antennal length 12.5 mm, colour like that of holotype male but white of club extends dorsally around its apex; head, body, and legs similar to male. FWL 20.0 mm (WS 40.5 mm); upperside similar to male but inner margin longer and termen more convex, markings similar to male but paler, more yellow, median band reduced, broadly divided by dark brown along the veins, sex brand absent; underside similar to male but cell with a spot, not a streak. Hindwing broader at costa, more rounded than in male; upperside with median band reduced to two diffuse pale orange spots; underside similar to male but spot reduced to a minute patch of yellow scales.

Types — 4 ♂♂, 2 ♀♀, *Holotype* ♂ (ANIC Type Reg. No. 2367), NEW GUINEA, Kiunga, Fly River, 2 July – 31 Oct. 1957, W. W. Brandt. (Genitalia vial No. ANIC MJP 034); *allotype* ♀ with same label data; *paratypes* 1 ♂, 1 ♀, Kiunga. (*i.e.* requiring the same label data as holotype (the ♂ with ANIC genitalia slide No. Brandt 64/176), in ANIC; 1 ♂, Eilanden R., S.-E. Dutch N. Guinea. Dec. 1910 (A.S. Meek). (Genitalia vial No. BMNH (v) 1179); 1 ♂, Base Camp, Utakwa R., sea level, Dutch N. Guin., Nov. Dec. 1912. A.F.R. Wollaston., in BMNH.

Diagnosis Very closely related to its sister species *Mimene celia celia* EVANS, 1935. The two species differ subtly in appearance and the male genitalia of *M. celiaba* (Fig. 25), are very similar to those of *M. celia*. In *M. celiaba* the male forewing median band upperside encompasses the well rounded sections of the sex brand (Fig. 6), and is joined to the subbasal region of diffuse orange scales. In *M. c. celia*, however, the median band is separate from the orange subbasal region and the sex brand sections

are longer and more ovate so that, proximally, they extend beyond the median band. The *M. celiaba* forewing subapex does not have the two or three orange spots that are present in that region of the *M. celia* forewing. Underside the forewing median band of *M. celiaba* is about twice as broad as that of *M. celia*. The hindwing band of the upperside of *M. celiaba* is much more diffuse than that of *M. celia* and is more proximally positioned so that it lies immediately below the discocellulars. In *M. celia* the hindwing band is not diffuse and is well separated from the discocellulars by the dark brown ground colour. The females of the two species are even more similar. That of *M. celiaba*, like its male, has a forewing median band upperside that is joined to the orange subbasal region, whereas this band is separate from the orange subbasal region in *M. celia*. The median band of the forewing upperside of *M. celiaba* is slightly more extensive and of a paler, more yellowish-orange than that of *M. celia*. The forewing cell apex of the underside of the *M. celiaba* female has an orange spot that is absent in *M. celia*.

***Mimene saribana* new species**

(Figs. 7, 28, 89–90)

Holotype male Antennal length 11.5 mm, shaft dark brown, ventrally pale yellow, apiculus orange-brown; head and frons with yellow scales that refract orange; palpi mainly dark brown centrally, otherwise pale yellow and tipped with dark brown; thorax brown, ventrally grey, some dark orange dorsally, metathorax densely overlain with long orange hair scales, dorsolateral prothoracic tegulae dark brown fringed with pale yellow; legs dark brown, tibiae and tarsi orange, except on forelegs where they are only orange ventrally. FWL 16.0 mm (WS 31.5 mm) costa slightly convex, termen convex; upperside dark brown marked with pale orange, consisting of a costal streak above cell, two subapical spots, and a broad central area encompassing the sex brand and extending into the cell apex and to wing base, linking the inner marginal and postmedian bands; sex brand (Fig. 7) grey-brown, consisting of four separate spots of short, densely packed, hair-like androconial scales; underside dark brown, central area orange, similar to upperside but also extending to fill all but base of cell, costal streak and inner marginal band absent, subapically a single, small, pale orange spot. Hindwing apex convex, termen basally concave so that tornus is pronounced; upperside dark brown, cell and ovate median band orange, subbasal area and inner margin broadly overlain with fairly dense, long, pale orange hair scales; underside wholly dark brown. Cilia of both wings dark grey apically, suffusing to pale orange by mid termen.

Types — Only the *holotype* ♂ (ANIC Type Reg. No. 2368), NEW GUINEA, Angoram (Sepik District) 20 ft. May 15 1950. Collected by Wm. Brandt, E. J. L. Hallstrom. (Genitalia vial No. ANIC MJP 028), in ANIC.

Diagnosis Very closely related to *Mimene celia sariba* EVANS, 1935. The two taxa differ subtly in appearance. In *M. saribana* the orange wing markings are slightly paler orange than those of *M. c. sariba*. As the markings of *M. c. sariba* are somewhat

variable in their extent, however, the male sex brand is the best means of visually separating *M. saribana* from *M. c. sariba*. In *M. saribana* the sections of the sex brand (Fig. 7) are smaller (about half the length) and more rounded than the larger, more elongate, sections of the *M. c. sariba* sex brand. The section of androconial scales that in *M. c. sariba* is present above vein 1A+2A, is absent in *M. saribana*. The male genitalia of *M. saribana* (Fig. 28), are similar to, but distinct from, those of *M. c. sariba*. Its uncus is distally slightly waisted and apically notched, whereas that of *M. c. sariba* is simply pointed with a rounded apex. Its valva is much squarer and has thicker setae along its distal margin than in *M. c. sariba* and the tip of its aedeagus is spatulate, whereas that of *M. c. sariba* is distally pointed (like that of *M. celiaba* in figure 25).

***Mimene verda* new species**

(Figs. 9, 26, 91–92)

Holotype male Antennal length 11.25 mm, shaft dark brown with some yellow scales at base of each segment, club dark brown, ventrally pale yellow, apiculus red-brown; head and frons with iridescent scales that refract mainly turquoise-green but also blue and orange; palpi mainly dark grey peppered with white, all scales (at correct angle), refracting pale blue or green; thorax brownish-orange, pro- and mesothoracic regions strongly refracting colours of the head, ventrally dark brown with same (but paler) refractive colours; abdomen (the proximal, uncut, half), similar to thorax in colour; legs dark brown, ventrally pale brown. FWL 18.0 mm (WS 36.5 mm), costa straight, termen convex; upperside dark brown with pale brownish-orange markings, consisting of subbasal bands of approximately equal length at the costa base, inside most of cell, above vein 1A+2A upto sex brand, and along inner margin, two very diffuse subapical spots, a postmedian band comprising three narrow crescents separated by dark brown veins and closely paralleling sex brand; sex brand (Fig. 9) dark brown, almost black, consisting of small, densely packed, ovate androconial scales; underside dark brown, a broad region of scales with a dull orange sheen along costa, apex, and termen, unmarked except for a diffuse submedian band of a few pale yellow scales. Hindwing apex convex, termen concave at base so that tornus is pronounced; upperside dark brown, subbasally pale brownish-orange, subbasal and inner marginal regions overlain with long pale brownish-orange hair scales, a reduced median band forms a central patch of pale brownish-orange divided by dark brown veins; underside dark brown with a dull orange sheen, unmarked except for a very diffuse median band of a few pale yellow scales. Cilia of both wings dark grey.

Types — Only the *holotype* ♂ (ANIC Type Reg. No. 2369), NEW GUINEA, Maprik (Sepik District), 600 ft. July 12 1950. Collected by Wm. Brandt, E.J.L. Hallstrom. (ANIC genitalia slide No. Brandt 640), in ANIC.

Diagnosis Nearest relative is *Mimene miltias* (KIRSCH, 1877), the male of which has orange forewing upperside markings similar to *M. verda* but underside possesses a broad band of dark orange at the basal half of its costa which is absent in *M. verda*. The forewing of *M. verda* is apically more rounded than that of *M. miltias*. The orange

hindwing markings of the two species are completely different. Those of *M. verda* form a recognisable median band upperside but in *M. miltias* this is entirely diffuse and merges with dense subbasal and inner marginal dark orange hair scales. Underside the hindwing of *M. verda* has only an extremely diffuse pale yellow median band. *M. miltias* lacks any median band but has a large dark orange patch that broadly covers the basal half of its hindwing costa. The sex brands of the two species are very different. That of *M. verda* (Fig. 9) is complete, whereas in *M. miltias* the sex brand is broadly divided between veins CuA_2 and $1A+2A$ so that only a vestige of the lower half of the brand remains above $1A+2A$. The male genitalia of *M. verda* (Fig. 26) are very similar to those of *M. miltias* but its valva is distally squarer and the distal margin has a shorter row of thicker spines than in *M. miltias*.

***Mimene wara* new species**

(Figs. 10, 27, 93–94)

Holotype male Antennal length 10.0 mm, shaft black, pale yellow at base of each segment ventrally, club black, pale yellow ventrally, apiculus dark red-brown; head with creamy-yellow adjacent to eye margins, a basal ridge of vertical dark brown scales and orange hair scales, a central black band of short hair scales between the eyes, a band of long black and orange hair scales (the latter refracting pale turquoise depending on angle viewed) between the antennal bases, a tuft of black hair scales between each antennal base and eye margin, frons black with a basal band of black, orange, and pale turquoise hair scales; palpi yellow, peppered and tipped with dark brown; thorax black, overlain with long, laterally dense, dark brown and pale orange hair scales, ventrally grey, overlain with orange and pale turquoise hair scales, dorsolateral prothoracic tegulae dark brown fringed with pale orange; abdomen (before removal for dissection) black, dorsally suffused with orange, basally densely overlain by long orange hair scales, ventrally cream; legs orange suffused with dark brown, femora and tibiae with long dark brown and orange hair scales. FWL 16.0 mm (WS 31.0 mm), costa straight, termen convex; upperside mostly dark brown but with some very diffuse dark orange markings, consisting of a small subbasal patch and inner marginal band overlain by short pale yellow hair scales, a streak along costa base, another along radius inside cell apex, a subapical patch which fills spaces between the dark brown radial veins, postmedian band consists of only a few dark orange scales between the veins; sex brand (Fig. 10) pale grey-brown, consisting of short, glossy, densely packed, hair-like androconial scales; underside costa basally dark orange, suffusing to paler orange-brown above cell and broadly across apical half of wing to mid termen, remaining area (to base), dark brown, postmedian band very diffuse pale tan. Hindwing fairly elongate, apex convex, termen slightly concave at base so that tornus is pronounced; upperside unmarked, dark brown with a purple sheen in the costal region (when viewed at certain angles in strong light); underside dark orange-brown suffused with dark brown, median band very diffuse tan, entire wing with purple sheen (when viewed at certain angles in strong light). Cilia of both

wings with dark grey basal layer and longer creamy-white scales which, on forewing, suffuse to grey from mid-termen to apex.

Types — Only the *holotype* ♂, Nauti Logging Road, on creek, Grid sq. DM 59 (BULOLO), MOROBE PROV., PNG., M. J. Parsons, 27-2-1983, I. F. T. A. Coll. Alt. 1100 m. (Genitalia vial No. BMNH (v) 1043), in BMNH.

Diagnosis Not closely related to any members of its genus and externally very like *Sabera fusca* JOICEY and TALBOT, 1917 (see below). However, as it has almost wholly dark brown wings *M. wara* superficially resembles several *Mimene* species that are likewise poorly marked. It is immediately separable from *Mimene wandammanensis* JOICEY and TALBOT, 1917 and *M. milnea* EVANS, 1935 by its hindwing cilia which are creamy-white, not yellow as in those species. It is similar to *M. orida* (BOISDUVAL, 1832) in that *orida* also has creamy-white hindwing cilia. *M. wara* is, however, smaller (16/31) than *M. orida* (18/35) and is obvious for the mustard-yellow of the underside of its labial palpi and body, greyish to dark brown in *M. orida*. The sex brand of *M. wara* (Fig. 10) is complete, whereas those of *M. wandammanensis* and *M. orida* are sectioned; that of *M. milnea* is absent. The male genitalia of *M. wara* (Fig. 27) are very distinct for a *Mimene* species, being different from all other members of its genus. Its uncus, in dorsal aspect, is narrower than is usual for a *Mimene* species, although its squared blunt apex places it with certainty in the genus. The valva of *M. wara* differs from all other *Mimene* in that its dorsal margin is longer than its ventral margin, the reverse being true of the valvae of other species. (e.g. compare with valvae in figures 25 and 26).

***Mimene ozada* new species**

(Figs. 8, 29, 95 – 96)

Holotype male Antennal length 12.0 mm, shaft dark brown, almost black, basal half with white at base of each segment, club dark brown, almost black, ringed at apex with white, apiculus dark grey; head and frons with dark brown and pale yellow scales (the latter refracting pale green at certain angles), dorsally pale yellow adjacent to eye margins; thorax dark brown, ventrally dark grey-brown, dorsolateral prothoracic tegulae dark brown fringed with pale yellow; abdomen (before removal for dissection) dark brown, distal edges of segments increasingly fringed with white towards tip; legs dark brown, ventrally pale brown. FWL 18.0 mm (WS 34.5 mm), costa slightly convex, apex of termen convex, otherwise straight; upperside dark brown, unmarked except for a line of pale yellow at costa base, some brownish-yellow scales subbasally and along inner margin for half length of its base, a suffusion of brownish-yellow in the postmedian region, adjacent to sex brand between veins CuA₂ and CuA₁; sex brand (Fig. 8) grey-brown, consisting of small, densely packed, ovate, raised androconial scales; underside dark brown, apical half with a dark purple sheen, unmarked except for a small patch of diffuse cream scales in postmedian region between veins 1A+2A and CuA₂, sex brand shows through wing as a dark shadow. Hindwing apex convex, termen basally concave so that tornus is pronounced;

upperside dark brown, unmarked except for long brownish-yellow hair scales which overlie cell, subbasal, and central area; underside dark brown with a dark purple sheen, unmarked except for two diffuse white spots in median region, the smaller spot between veins M_3 and M_1 , the larger between veins $1A+2A$ and CuA_2 . Cilia of both wings with grey-brown basal layer and longer white scales which, on forewing, suffuse to dark grey from mid termen to apex.

Types — Only the *holotype* ♂ (ANIC Type Reg. No. 2370), Kga 15/9 (*i.e.* requiring the following label data: NEW GUINEA, Kiunga, Fly River, 2 July – 31 Oct. 1957 (15/9) W. W. Brandt.). (Genitalia vial No. ANIC MJP 023), in ANIC.

Diagnosis In appearance most closely resembles *Mimene orida* (BOISDUVAL, 1832) due to its predominantly dark brown colouration. The hindwing cilia of *M. ozada* are, however, white, creamy-white in *M. orida*. The sex brand of the male forewing of *M. ozada* (Fig. 8) is complete and fills three vein spaces, but in *M. orida* it is shortened and occupies only two spaces between veins M_3 and CuA_2 . The male genitalia of *M. ozada* (Fig. 29) are distinctive, as are those of *M. orida*, so their relationship is probably not as close as their external facies first suggest. The uncus of *M. ozada* is basally much broader than that of *M. orida* and its valva is much shorter and distally squarer than the *orida* valva which is unusually long and tapered distally. The aedeagus of *M. ozada*, unlike any other *Mimene* species, is markedly expanded at its distal half.

Comments Until now *Mimene* contained 15 named species, according to EVANS (1949). With the addition of the five new taxa described here a better appraisal of the diversity of the genus can be made (e.g. EVANS says “a very mixed lot in respect of facies”), *Mimene* is very closely related to *Sabera* but the two genera are separated by characters of the male genitalia, especially the uncus which, in *Sabera* (e.g. Fig. 24), is long, thin, and narrowly tapered distally, in *Mimene* (e.g. Fig. 25), basally broader and with a less narrowly tapered apex. In this respect *M. wara* is a very interesting new species because it has *Mimene*-like male genitalia (Fig. 27) but *Sabera*-like external features (Figs. 93, 94). The only really obvious detail by which it can visually be separated from *S. fusca* is its ventrally mustard-yellow labial palpi and body, rich brown in *S. fusca*. *M. wara* is a species which, therefore, suggests that *Mimene* may eventually be better treated as a synonym of *Sabera*. It may also be of some taxonomic significance that the male genitalia of *M. wara* look very similar to *Telicota eurotas* (C. FELDER, 1860) which itself differs from all other *Telicota* species in lacking the deeply bifurcate uncus and more elongate valvae characteristic of that genus.

M. celiaba and *M. saribana* both belong to a closely related group of species that require further revision. Both show close affinities to *M. celia*. The male genitalia of this group are all very similar but, nevertheless, differ subtly. Interestingly, the shape of the aedeagus tip is useful in identifying members of the *celia* species group (compare Figs. 25 and 28). *M. celiaba* and *M. saribana* are sympatric at Kiunga (Western Province, PNG), together with other species of their group. Little variation is evident in the short type series of *M. celiaba*. The male (18/37) and female (19/37) paratypes from Kiunga are, however, notably smaller than the holotype (19.5/39.5) and allotype (20/40.5). These specimens also lack the spot of the hindwing underside and the female

has slightly less white on the upperside of its antennal club than the allotype.

The slight waist and notch at the apex of the uncus of *M. saribana* are also features of the unci of *M. miltias*, *M. basalis*, and *M. verda*. In this respect, the four species are distinct from all other *Mimene*. The features confirm that the *celia* and *miltias* species groups are closely related as is suggested by their wing colours and patterns. Besides *M. miltias*, *M. basalis*, and *M. verda*, the *miltias* species group includes *M. lysima* (SWINHOE, 1905). All four species differ subtly in their male genitalia, mainly in the morphology of their valvae. Interestingly, they are all sympatric at Maprik (East Sepik Province, PNG), as they probably are elsewhere in that general area.

***Ocybadistes zelda* new species**

(Figs. 13, 30, 97 – 102)

Holotype male Antennal length 6.5 mm, shaft black with cream at base of each segment, club black, ventrally orange-yellow, diffuse black bands at base of each segment, apiculus black; head with long yellow hair scales that refract orange and pale turquoise, short orange and cream scales adjacent to eye margins, a tuft of black hair scales at base of each antenna, frons with short, black, glossy scales that refract metallic blue and purple; palpi pale orange, peppered with black, basally white, mid-ventrally pale orange, dorsally tipped with dark brown; thorax black, ventrally overlain by pale turquoise hair scales, dorsolateral prothoracic tegulae overlain by long hair scales which refract orange and pale turquoise; abdomen (before removal for dissection), dorsally black suffusing to orange along distal half, creamy-yellow ventrally; legs with femora peppered with dark brown and creamy-yellow, ventrally with long orange hair scales, tibiae mainly orange with some dark brown, those of the hind legs dorsally overlain by long orange hair scales, tarsi dark brown with a few pale orange scales dorsally. FWL 10.0 mm (WS 21.3 mm), costa slightly concave, termen convex; upperside dark brown marked with orange, consisting of a broad streak at costa base, a cell band above cubitus which broadens at cell apex to extend between radial veins R_1 and R_3 , an inner marginal band, an irregular postmedian band which parallels the sex brand but curves away from it between veins $1A+2A$ and CuA_2 , and a large subapical spot centred between apices of cell and postmedian band, subbasal and apical regions of wing with a suffusion of orange scales; sex brand (Fig. 13) broad, dark brown, consisting of densely packed, slightly glossy, flat, ovate androconial scales overlain by a sparser layer of shiny, hair-like androconial scales; underside similar to upperside but markings are orange-yellow, inner marginal band and subbasal orange suffusion absent, costal streak extended to meet cell band apically, apex and subapical area broadly suffused with yellow which extends down two thirds of termen, between this and the cilia a thin line of dark brown. Hindwing well rounded, apex convex, termen very slightly convex so that tornus is barely pronounced; upperside dark brown marked with orange, consisting of a large cell spot and subapical spot, a smaller spot above radial sector of cell, and an irregular postmedian band, subbasal area of

wing and basal area of inner margin with long orange hair scales; underside similar to upperside but markings orange-yellow and slightly broader, terminal line, tornal area, cell spot, subapical spot, and postmedian band margins all dark brown, remainder of wing wholly suffused with yellow scales so that, when viewed without magnification, the wing has an overall greenish appearance. Cilia of forewing upperside with dark grey basal layer and longer orange-yellow scales, underside orange-yellow, grey at veins; hindwing orange.

Allotype female Antennal length 6.0 mm, shaft dark brown with white at base of each segment, club and apiculus dark brown; head and thorax similar to holotype male, abdomen (notably broader) similar to male but dark brown ventrally with a suffusion of cream scales; legs dark brown except for a sparse suffusion of cream on femora and orange on tibiae, orange hair scales ventrally on femora are shorter and less dense than those of male. FWL 10.0 mm (WS 21.5 mm), forewing very similar to male but lacks sex brand and is apically suffused with pale brown. Hindwing similar to male but underside suffused with pale brown scales so it is darker. Cilia of forewing dark grey; hindwing yellow.

Types — 8 ♂♂, 3 ♀♀. *Holotype* ♂ (ANIC Type Reg. No. 2371), NEW GUINEA, Western Highlands, Mt. Hagen Range. Murmur Pass, 8700 ft. 27.10 – 20.12.1961, W. W. Brandt. (Genitalia vial No. ANIC MJP 008); *allotype* ♀, 8600 ft. (*i.e.* requiring same label data as holotype but 8600 ft.); *paratypes* 2 ♂♂, MP and 8600 ft. (*i.e.* requiring same label data as holotype); 5 ♂♂, 4 of which, KP. (One with genitalia vial No. ANIC MJP 039); these require label data of fifth ♂, NEW GUINEA, Western Highlands, Kandep, 8000 – 8500 ft. 23.12.1961 – 14.12.62, W. W. Brandt.; 1 ♀ with same label data, in ANIC; 1 ♀, PAPUA NEW GUINEA, WESTERN HIGHLANDS PROV; SIRUNKI (VIA WABAG), LAKE IVIVA, 4-VI-1966, J. L. GRESSITT., in BBMH.

Diagnosis A distinctive species at once recognisable from the other five members of its genus by its short, broad, apically rounded forewing, and its comparatively large hindwings. *O. zelda* has a distinctive wing pattern compared to other *Ocybadistes*. The orange markings of its upperside are somewhat reduced and give it a darker appearance than the other members of its genus. The male sex brand of *O. zelda* (Fig. 13) is the broadest and squarest of its genus. All other species possess brands which are markedly tapered towards vein 1A + 2A or are otherwise incomplete or absent. Although its male genitalia (Fig. 30) differ little from the generally uniform appearance of the other species of its genus, *O. zelda* has, nevertheless, notably elongate, almost parallel sided, valvae.

Comments Until now *Ocybadistes* contained 5 named species, according to EVANS (1949). *O. zelda* appears to be the only member of its genus that occurs at high altitude. As yet it is known from only three localities in the central region of the Western Highlands Province of PNG. The Murmur Pass type locality, just west of Mt. Hagen, is fully described by SIBATANI (1974: 102), Kandep lies about 50 km to the east. Sirunki is about 50 km north of Kandep. Although the altitude where the Sirunki female was collected is not given on its data label, it was probably taken at an

elevation similar to that of the rest of the type series, all taken by BRANDT at between 8000 – 8700 feet (about 2620 – 2850 metres).

Interestingly *O. zelda* is known only from an area with a fairly high percentage of endemism in its butterfly fauna. For example, there is another very distinct hesperiid of the genus *Taractrocera* that was taken by BRANDT at the same localities as *O. zelda* and which has yet to be described by SANDS and FENNER. The Brandt Collection also contains what is apparently a very distinctive subspecies of another hesperiid, *Suniana sunias* (FELDER, 1860), also from Kandep, and which, in common with *O. zelda* from that locality, has a markedly orange underside. Of the Pieridae a very distinctive yellow (not white), new member of the *Delias aroae* (RIBBE, 1900) species group, *D. flavissima* ORR and SIBATANI, 1985, is also known from the same general region. Of the Lycaenidae the endemic *Melanolycaena altimontana altimontana* SIBATANI, 1974, has recently been described from the same area. Also in this region there occurs a distinctively melanic form of *Platyphthima decolor* ROTHSCCHILD and JORDAN, 1905 (Nymphalidae, Satyrinae).

O. zelda exhibits some variation, both individually and geographically. For example, one topotypical paratype male is somewhat smaller (9.8/20.5) than the holotype (10/21.3). A paratype male from Kandep is, however, the smallest specimen of the type series (9.5/19.5). The above mentioned Murmur Pass paratype has a slightly more dense suffusion of yellow scales to its hindwing underside so that the postmedian band lacks the distinct dark brown margins present in the holotype. The postmedian band of the forewing of this specimen is somewhat narrower than that of the holotype. The main difference between specimens of *O. zelda* from Kandep and the type locality is that they are more heavily suffused with orange (not yellow) on the underside of the forewing apex and hindwing. This gives the markings of their undersides a more orange appearance. A male (Figs. 101, 102) and female paratype from Kandep have somewhat narrower markings than the rest of the type series and the base of the hindwing postmedian band forms an isolated spot. The female from Sirunki is very similar to the allotype from Murmur Pass. Apart from the slight differences mentioned above, members of the three populations are extremely similar and it is unnecessary to give the species a further, subspecific, name.

***Telicota sadrella* new species**

(Figs. 32 – 35, 103 – 106)

Holotype male Antennal length 9.0 mm, shaft and club black, both orange frontally, apiculus red-brown; head and palpi orange, peppered with black, tips of palpi black dorsally; thorax black overlain with long orange hair scales, ventrally densely covered with pale yellowish-orange hair scales; abdomen (proximal, uncut, half) orange peppered with black, ventrally pale yellowish-orange; legs orange. FWL 15.5 mm (WS 30.5 mm), costa slightly concave, termen straight; upperside (including leading edge of costa and all veins) dark brown, almost black, marked with orange, consisting of a subbasal patch, a broad costal band linked subapically to the

postmedian band, entire cell (almost to discocellulars), and an inner marginal band; sex brand dark grey-brown, parallel to (but separate from) proximal margin of postmedian band, (similar to brand in Fig. 11), consisting of elongate, densely packed androconial scales; underside basally dark brown, almost black, apical half of wing (mainly above vein CuA_2) orange, inner marginal band absent, postmedian band yellowish-orange basally, apically defined at margins by diffuse dark brown. Hindwing costa slightly convex, termen slightly concave so that tornus is pronounced; upperside (and all veins) dark brown, almost black, marked with orange, consisting of apical cell spot and 2.5 mm wide median band, the orange extending along vein $1A+2A$ to termen, cell and area between cell cubitus and vein $3A$ overlain by long orange hair scales; underside orange, termen narrowly dark brown from apex to between veins $1A+2A$ and CuA_2 , continuing as a separate spot at end of vein CuA_2 , postmedian band defined by diffuse dark brown margins. Cilia of both wings orange but dark brown at veins of forewing apex.

Types — 17 ♂♂. *Holotype* ♂, AMBUNTI, EAST SEPIK PROV., PNG., M. J. PARSONS, OCT, 1982, I. F. T. A. coll. Alt. 100 m. (Genitalia vial No. BMNH (v) 1291); *paratypes* 1 ♂, WAIGEU, Platen.; 1 ♂, Nouv. Guinée, Baie de Geelwink, Yaour, W. Doherty 1892.; 3 ♂♂, Nouv. Guinée, Baie de Geelwink, Ansus (Ile Jobi), W. Doherty 1892.; 1 ♂, 7.21, Roon Island, Geelvink Bay, Dutch N. Guinea. July 1920, C., F., & J. Pratt.; 1 ♂, Dorei Bay, North New Guinea, April & May, 1909. C. & F. Pratt.; 1 ♂, Doreh Bay, North New Guinea, April 1910, C. & F. Pratt.; 1 ♂, Kapaur, Dutch N. G. Low c. XII. 96. Doherty. (Genitalia vial No. BMNH (v) 1223); 2 ♂♂, Astrolabe Bay, Germ. N. Guin., January, (Wahnes); 1 ♂, German New Guinea, 788. (Genitalia vial No. BMNH (v) 1208), in BMNH; 4 ♂♂, NEW GUINEA, Maprik (Sepik District), 600 ft. August 6 1950. Collected by Wm. Brandt, E. J. L. Hallstrom. (Genitalia vial No. ANIC MJP 041; ANIC genitalia slide Nos. Brandt 586 and 587), in ANIC.

Diagnosis Very closely related to its sister species *Telicota sadra* EVANS, 1949. The most obvious features of the *T. sadrella* male, in comparison with *T. sadra*, are the slightly paler orange markings and cilia of its upperside and the more clearly defined median band of its hindwing underside. The median band of the underside of *T. sadra* is not usually defined by a dark brown line along its proximal margin, whereas that of *T. sadrella* normally is. The underside of *T. sadrella* is always paler orange than the dark orange (reddish-ochreous) of *T. sadra* and its markings are of a more yellowish-orange. Unlike *T. sadra* the median band of its hindwing underside can have a very slight purple tint. The dark grey sex brand of *T. sadrella* is normally paler in appearance than that of the dark brown brand of *T. sadra*. The male genitalia of *T. sadrella* (Figs. 32–35) are very similar to those of *T. sadra* (Fig. 31). The unci of the two species which have slim, usually almost parallel, arms are especially alike. The valva of *T. sadrella* is, however, distally broader and much less ‘waisted’ below its distal margin than that of *T. sadra*.

***Telicota bulwa* new species**

(Figs. 36 – 38, 107 – 110)

Holotype male Antennal length 10.0 mm. In all but the following details very similar to the *T. sadrella* holotype male: FWL 18.0 mm (WS 34.0 mm). Orange markings upperside slightly narrower, sex brand (similar to that in Fig. 11) somewhat broader and more separate from postmedian band. Orange of underside is darker (reddish-ochreous).

Types — 5 ♂♂. *Holotype* ♂, MANKI DIVIDE, BULOLO, MOROBE PROV., PNG., M. J. Parsons, NOV. 1982, I. F. T. A. coll. Alt. 1200 m. (Genitalia vial No. BMNH (v) 1295) ; *paratypes* 2 ♂♂ with same label data (genitalia vial Nos. BMNH (v) 1294 and BMNH (v) 1296), in BMNH ; 2 ♂♂, NEW GUINEA, Kodama Range, Mt. Kaindi, 4500 ft. 27.2.1952. Collected by Wm. Brandt, Sir Edward Hallstrom. (One with genitalia vial No. ANIC MJP 017), in ANIC.

Diagnosis Very closely related to its sister species *T. sadra* and *T. sadrella*. *T. bulwa* is, however, usually notably larger (18/34) than these species (both about 16/32). The underside of *T. bulwa* is very much like that of *T. sadra* with the same dark orange (reddish-ochreous) colour, but the median band can be even more obscure. *T. bulwa* is distinguishable from both its sister species by its darker looking upperside because its orange markings are somewhat more reduced. Its forewing postmedian band is much narrower than in *T. sadra* and *T. sadrella*, the proximal margin of which curves away from the sex brand but is more parallel to the brands in the latter two species. The male genitalia of *T. bulwa* (Figs. 36 – 38) are very similar to those of *T. sadra* (Fig. 31) and *T. sadrella* (Figs. 32 – 35). The uncus of *T. bulwa* has, however, much broader, more ovate, arms which are more widely V-shaped than in those species. Its valva is the most variable of the three species. It is very similar to that of *T. sadrella* but is narrower along its distal half.

***Telicota brandti* new species**

(Figs. 11, 39 – 40, 111 – 116)

Holotype male Antennal length 8.5 mm, shaft dark brown with pale yellow segmental bands that extend to halfway across ventral side of club, the remainder of which is red-brown, apiculus dark brown ; head and frons iridescent green and orange, frons with cream adjacent to eye margins ; palpi pale yellow, peppered and tipped with black ; thorax dark brown, ventrally pale greenish-cream ; abdomen previously removed for dissection ; legs dark brown, ventrally pale yellow. FWL 16.0 mm (WS 30.0 mm), costa slightly concave, termen slightly convex ; upperside dark brown marked with pale yellow, consisting of a subbasal suffusion extending along proximal half of costa, a narrow (1.25 mm) postmedian band, an inner marginal band, three subapical spots and an oblique band in distal half of cell ; sex brand (Fig. 11) black, consisting of densely packed, ovate androconial scales ; underside dark brown basally, paler brown along costa and remaining apical half of wing area, inner marginal band

absent, otherwise markings similar to upperside but slightly broader and paler yellow. Hindwing apex convex, termen slightly concave basally so that tornus is barely pronounced; upperside dark brown with an ovate pale yellow median band, narrowing basally but broadens out along vein 1A+2A, crossed by dark brown veins, subbasal and inner marginal regions of wing overlain by long dark brown hair scales; underside heavily suffused with cream extending over median band, base of which is streaked with pale yellow, the cream scales with a pale green sheen, tornal region dark brown, only very lightly suffused with cream. Cilia of both wings dark brown but flecked with cream in tornal region of hindwing.

Allotype female Antennal length 8.0 mm. In all details very similar to the holotype male but without sex brand; abdomen dark brown dorsally, ventrally white. FWL 15.0 mm (WS 31.0 mm), termen more convex than male, hindwing more rounded and all markings more reduced. Forewing lacks a cell band, its subapical spots are faintly indicated only on the underside. Hindwing underside has denser, more extensive, cream scales with less of a pale green sheen than in male.

Types — 13 ♂♂, 1 ♀. *Holotype* ♂ (ANIC Type Reg. No. 2372), NEW GUINEA, Maprik (Sepik District), 600 ft. July 7 1950. Collected by Wm. Brandt, E. J. L. Hallstrom. (ANIC genitalia slide No. Brandt 582); *allotype* ♀ with same label data as holotype; *paratypes* 12 ♂♂, NEW GUINEA, Kodama Range, Mt. Kaindi, 4500 ft. (various dates between February and March 1952, although the majority of labels have not been corrected in handwriting from the printed 1951). Collected by Wm. Brandt, Sir Edward Hallstrom. (Two with genitalia vial Nos. ANIC MJP 001 and 002), in ANIC.

Other material examined 27 ♂♂ with same data as paratypes from Mt. Kaindi (excluded from type series because not set/spread); 6 ♂♂ by D. SANDS from the following localities: Hobu and Lae (Morobe Province, PNG) and Pagwi (East Sepik Province, PNG).

Diagnosis Very distinctive for a *Telicota* species, differing from 'normal' members of the genus (e.g. *T. sadrella*), in its much yellower, more reduced markings upperside and its extensively creamy-white suffused hindwing underside. The reduced markings of the upperside are somewhat similar to those of *Telicota aroa* EVANS, 1934 which EVANS (1949) stated was the darkest species of its genus. The sex brand of *T. brandti* (Fig. 11) is, however, completely different from that of *T. aroa*, being black and closely parallel to the proximal margin of the postmedian band, but dark grey and completely separate from the postmedian band in *T. aroa*. The male genitalia of *T. brandti* (Figs. 39–40) are very distinct. The paired arms of the uncus are shorter than in any other *Telicota* species with similar unci (only two species have the uncus distally tapered and without paired arms). The narrow, thumb-like apex to the valva is also unique for its genus as all other *Telicota* possess valvae that are distally well rounded or are similar to those in figures 31–38, some with large spines distally.

Telicota mimena new species

(Figs. 12, 41, 117–118)

Holotype male Antennal length 11.0 mm, shaft black, club black, ventrally pale yellow, apiculus dark red; head and frons black, frons with long iridescent pale turquoise scales diffusing to white adjacent to eye margins; palpi peppered with turquoise and grey, white basally; thorax greenish-brown, ventrally cream; abdomen (before removal for dissection) dark greenish-brown basally, suffusing to dark brown distally with segments distally fringed with greenish-brown, ventrally pale olive-green with two tufts of bright cream scales before penultimate distal segment; legs with only left foreleg remaining, femur dark brown, ventrally pure white, tibia dark brown suffused with yellow-brown, ventrally pale yellow, tarsus dark brown, ventrally pale yellow. FWL 20.0 mm (WS 38.0 mm), costa slightly concave, termen convex; upperside dark brown marked with pale yellow, consisting of a subbasal suffusion, an inner marginal band, and a very reduced and diffuse postmedian band, present only between veins 1A+2A and CuA₂; sex brand (Fig. 12) grey, consisting of densely packed, narrowly ovate androconial scales; underside dark brown, apex broadly suffused with greenish-grey, narrowly so along costal margin, a large, cream, subapical spot divided by dark brown radial veins, postmedian band represented by a suffusion of pale brown, mainly between veins CuA₁ and M₃. Hindwing apex convex, termen slightly concave so that tornus is pronounced; upperside dark brown, subbasally suffused with pale yellow, postmedian band reduced, centred between veins CuA₂ and M₃, consisting of three patches of diffuse pale yellow broadly divided by dark brown along veins; underside white across proximal two thirds of wing area, suffusing to greenish-grey across remainder of wing except for a dark brown tornal area. Cilia of both wings dark grey.

Types — Only the *holotype* ♂, (CAS Type Reg. No. 15226), New Guinea: Morobe District, Sandy Creek, 8 km. NE of Wau, 900 m, 21-I-1974, P. J. & M. C. Shanahan. (Genitalia vial No. TWD MJP 006), in CAS.

Diagnosis Very distinctive for a *Telicota* species, differing from 'normal' members of the genus (e.g. *T. sadrella*), in its much yellower, extremely reduced markings upperside and its extensively creamy-white underside. These features are similar to those of the preceding species, *T. brandti*, but *T. mimena* is much larger, has even more reduced markings upperside, (the darkest member of its genus in this respect), and has a broader sex brand (Fig. 12) compared to that of *T. brandti* (Fig. 11). *T. mimena* is the largest species of its genus (20/38), whereas *T. brandti* (16/30) is of average size. The male genitalia of *T. mimena* (Fig. 41) are very distinct. The uncus is typical of that found in *Telicota* but the valva is notably elongate and distally large. In general appearance it resembles the valvae of members of the *Telicota colon* (FABRICIUS, 1775) species group but its distal half is almost as large in area as its basal half, whereas in other *Telicota* species the proportion of the distal half of the valva is about one half to as little as one third of the basal area.

Comments According to EVANS (1949) the genus *Telicota* contained 22 species,

16 of which occur in New Guinea. With the description of *Telicota hilda* ELIOT, 1959 and a brief, but incomplete, revision of the *T. ancilla* (HERRICH-SCHÄFFER, 1869) and *T. linna* EVANS, 1949 species groups by ELIOT (1967), the total was brought to definitely 25, but probably 28, species. The latter total is more nearly correct so, with the addition of the 4 species described here, the total number of *Telicota* now stands at a more accurate 32 species.

T. brandti and *T. mimena* are surprisingly distinctive members of their genus. Their characters suggest that they do not belong to any natural species groups within *Telicota* but must, at present, be considered to be individually isolated species. In particular *T. mimena* is unusual because the only external feature that indicates its correct placement in *Telicota* is its sex brand. In fact in size and general appearance, *T. mimena* looks extremely like a *Mimene* species, especially *M. albidiscus* (JOICEY & TALBOT, 1917). Its deeply divided uncus, however, clearly distinguishes it as a *Telicota* species. If *T. mimena* is mimetic of another lepidopteran then this may explain why it is aberrant for its genus. Its model could be a (presumably distasteful), day flying agaristine noctuid moth. The same may also be true of *T. brandti*.

The holotype male and allotype female of *T. brandti* were, according to BRANDT's notes (ANIC unpublished), taken in copula by him at Maprik in the East Sepik Province of PNG. His series of only males from Mt. Kaindi differ mainly in that they have darker hindwing undersides than the holotype with more of a mauve sheen replacing the cream scaling of the proximal half of the wing. BRANDT had intended to give a subspecific name to the Maprik pair of *T. brandti* (using the Mt. Kaindi series as the nominate race), but this is unnecessary because it is a fairly variable species. For example, three males of the Mt. Kaindi series approach the appearance of the Maprik specimens, whereas one (unset) male lacks all traces of the cream of the hindwing underside and has only a wholly mauve sheen. The set series of Mt. Kaindi males range in size from 14.5/29 to 16/30.5. The width of their yellow markings and sex brands also varies somewhat. BRANDT noted that the whole series was taken at only one locality on Mt. Kaindi at 4000 feet (about 1300 metres).

T. sadrella and *T. bulwa* are extremely similar to *T. sadra*. In colour, pattern, and size they are typical of their genus. All three species belong to the *Telicota ternatensis* SWINHOE, 1907 species group. BRANDT had independently concluded that *T. bulwa* was an undescribed species, according to his notebook, although earlier he appears to have assumed the species to represent *T. ternatensis moorei* ROTHSCILD, 1915. As an illustration of just how similar *T. sadra*, *T. sadrella* and *T. bulwa* are, I at first included *T. bulwa* as part of a small series of *T. sadra* when I took the two species flying together not far from Bulolo on the Manki Divide (Morobe Province, PNG). Also, of the series of supposedly 15 males of *T. sadra* in the BMNH that were arranged by EVANS (1949), only 4 are in fact of that species. The other 11 specimens are now correctly placed in the paratype series of *T. sadrella* together with a further *T. sadrella* male which EVANS had mistakenly included in his arrangement of *T. ternatensis moorei*. The holotype of *T. sadra* has no accurate data, but two other males in the BMNH are from Kapaur and a third is from Ansum (Jobi Island), so it appears that at

these localities in Irian Jaya, and probably others, *T. sadra* and *T. sadrella* are sympatric.

Some features of the *sadra* sub-group are noteworthy here. The dark orange (reddish-ochreous — EVANS, 1949) hindwing undersides of *T. sadra* and *T. bulwa* are especially obvious in fresh, newly caught, specimens. This feature of some of the limited BMNH series of *T. sadra* appears to be much faded and one specimen from Jobi Island has quite a pale orange underside. Specimens of *T. sadrella* from the Sepik and Madang Provinces (PNG) usually have quite broad orange postmedian bands on the forewing upperside (*i.e.* broader than in *T. sadra*). This is normally a feature of the species in other localities, although some of the *T. sadrella* paratypes listed above have postmedian bands as narrow as those of *T. sadra*. Both species are similar in size (average 16/32) but do vary about this mean. The male genitalia of *T. sadrella* and *T. bulwa* (respectively Figs. 32–35 and 36–38), are somewhat variable, especially the valvae, and in one specimen of *T. sadrella* from Kapaur the valva (Fig. 34) is almost square at its distal margin.

Lycaenidae (Miletinae)

Spalgis asmus new species (Figs. 42, 119–124)

Holotype male Antennae broken at half their length (see allotype female description) ; head grey with a turquoise iridescence, frons grey with white adjacent to eye margins ; palpi white, suffusing to dark grey apically ; thorax grey with a pale turquoise sheen, ventrally greyish-white ; abdomen (before removal for dissection), dark grey, suffusing to creamy-grey ventrally ; legs white, tarsi alternately ringed with broad bands of cream and creamy-yellow. FWL 12.5 mm (WS 23.5 mm), costa slightly convex, termen straight but angles inwards at tornus ; upperside apex and termen broadly (2.5 mm) dark grey, costa more narrowly dark grey, just encroaching into cell, remaining wing area pure white, suffusing subbasally, along inner margin and cell base, to pale blue, the white area indented along discocellulars at cell apex by a few dark grey scales ; underside patterned all over with a complex series of dark grey-brown zigzagged lines, ground colour of subapical area greyish-white, of costa mainly grey, of median region mainly dark grey. Hindwing apex convex, termen only slightly convex ; upperside dark grey, suffusing to a grey central area with a diffuse region of pale blue scales that encroach into cell but are mainly outside the dark grey discocellulars between veins M_3 and M_1 ; underside patterned all over with dark grey-brown zigzagged lines, ground colour predominantly grey from base to postmedian line, then mainly greyish-white to termen. Cilia of both wings with a grey basal layer and a longer outer layer of white scales.

Allotype female Antennal length 4.8 mm, shaft basally dark brown, suffusing to

darker brown, almost black, along its rear half and onto club, rear half banded with white at base of each segment, decreasing towards base of club, club dorsally orange-brown, ventrally and tipped with orange, frontally without scales. Like holotype male in all but the following details: FWL 14.0 mm (WS 26.5 mm), costa and tornus more convex; underside with darker brown markings and two diffuse patches of dark grey-brown in subapical and midterminal regions of wing, midterminal patch being twice the size of the subapical patch.

Types — 1 ♂, 7 ♀♀. *Holotype* ♂, (CAS Type Reg. No. 15225), NEW GUINEA, 6.4 km W. of Wau, Namie Creek on Mt. Kaindi road, alt. 1560–1800 m, 10-IX-1972, Thomas W. Davies. (Genitalia vial No. TWD MJP 013), in CAS; *allotype* ♀, Goodenough Isl., 2500–4000 ft., April 1913, A. S. Meek., *paratypes* 2 ♀♀, Tari, Tari Station, Southern Highlands PROV., PNG., Kyle Campbell, 11-11-1979, I. F. T. A. coll.; 4 ♀♀, nr. Oetakwa R., Snow Mts., Dutch N. G. up to 3500 ft., x. xii. 1910 (Meek.), in BMNH.

Diagnosis A distinctive species that, in colour and pattern, appears to be more closely related to the recently described *Spalgis takanamii* ELIOT, 1984 than *S. epius* (WESTWOOD, 1851). The large white patch of the forewing uppersides of these two species are especially similar, although the patterns of zigzagged lines on their undersides are different. The exact relationship of *S. asmus* to *S. takanamii* will, however, remain unclear until the male of *S. takanamii* is collected: it is, so far, only known by its holotype female. *S. asmus* is slightly larger and less sexually dimorphic than *S. epius*. In *S. epius* the large white forewing patch of the female upperside is reduced to a discocellular spot in the male, whereas in the male of *S. asmus* it is almost as large as that of its female. The ground colour of the underside of *S. asmus* is of a lighter, more mottled appearance than that of *S. epius* which is of a uniform pale grey-brown. The male genitalia of *S. asmus* (Fig. 42) show that the species is very distinct from that of *S. epius*. The uncus of *S. asmus* is very large and rounded (in lateral profile), with a V-shaped sinus (in dorsal profile), and is attached to the vinculum and tegumen ring only by a single, tapered, hinge-like stalk at its base. In complete contrast the uncus of *S. epius* is much smaller, narrower, tapers to a single point apically, and is entirely fused to the vinculum and tegumen ring. The valva of *S. asmus* is laterally more rounded and distally more smoothly tapered than that of *S. epius*.

Comments The genus *Spalgis* MOORE, 1879 belongs to a very small tribe of the Lycaenidae, the Spalgini TOXOPEUS, 1929, which contains only one other genus, *Feniseca* GROTE, 1869. The tribe forms part of the subfamily Miletinae CORBET, 1939, according to the arrangement published by ELIOT (1973). Apart from *Spalgis epius* (India and Sri Lanka to westernmost New Guinea), a fourth species, *S. lemolea* DRUCE, 1890, is known from West Africa. *S. epius* was the subject of a study by FRUHSTORFER (1919) who listed 10 subspecies of the butterfly (three of which were newly described), and detailed their areas of distribution.

D'ABRERA (1978) treated, with caution, the female of *S. asmus* as being that of *S. epius pharnus* FELDER, 1889 but considered the BMNH material probably only

represented another distinctive subspecies of *S. epius*. Specimens representing *pharnus* from New Guinea are few in number and include one Kapaur male (BMNH), five Manokwari males (RML), and one Bonda Nyera male, two Fak Fak (jungle) females (AME). These localities are in westernmost Irian Jaya and are coastal. It is not certain whether *pharnus* occurs much further eastwards on the New Guinea mainland but, as yet, there are no records for the subspecies from PNG. *S. asmus* is, however, not the only representative of its genus in the eastern half of mainland New Guinea. There is also a third (undescribed), *Spalgis* species recorded from PNG, represented by two known specimens. The male (private coll., D. SANDS, Brisbane, Australia), was taken near the Musgrave River (Central Province), and the female (BMNH), was collected in the Hydrographer Mountains (Northern Province). It is typical of its genus: similar in size to *S. epius*, but with much rounder hindwings and a white patch on its forewing about half the size of that of *S. asmus*. The occurrence of *S. asmus* on Goodenough Island (Milne Bay Province, PNG) is interesting as it is a locality where other montane mainland species, such as *Felicena dirpha* (BOISDUVAL, 1832) (Hesperiidae), *Ornithoptera goliath* OBERTHÜR, 1888, and *Graphium weiskei* (RIBBE, 1900) (Papilionidae), have been recorded.

S. epius has an extremely wide range for such a small and apparently weakly flying butterfly. CORBET and PENDLEBURY (1978) state that *S. epius epius* is sometimes quite common at low elevations in gardens and secondary growth. This may be true of *S. epius pharnus* in western mainland New Guinea. However, the relatively few specimens of the butterfly suggest that it may be a more rarely encountered subspecies. This also appears to be true of the higher altitude occurring *S. asmus* of which, to date, only 8 specimens are known, only one (the holotype) being a male. R. CAMPBELL (pers. comm.) said that the two female specimens of *S. asmus* from Tari in the Southern Highlands Province of PNG, were collected at approximately 1500 m altitude on the grassy banks of a fairly large river that was bordered in places by tall secondary vegetation. Possibly, therefore, the paucity of *S. asmus* in collections is because it is normally arboreal in its habits and only comes down to flowing water to imbibe dissolved mineral salts. The *S. asmus* holotype male was also taken under these circumstances on Mt. Kaindi at Namie Creek.

(Lycaeninae)

Arhopala doreena new species

(Figs. 43, 125 – 129)

Holotype male Antennal length 10.0 mm, shaft dark brown, ventrally some white scales at base of each segment, club without scales except dorsally at its base where the dark brown scales of the shaft taper to a point, frontal half black, ventrally orange which continues onto unscaled section of the distal half of the shaft and tapers to finish halfway along it; head and frons dark grey, frons with white adjacent to eye

margins; palpi white, tipped with dark grey; thorax black suffused with pale iridescent blue, laterally overlain by pale grey hair scales, ventrally white; abdomen dark grey, laterally cream, ventrally pale yellow; legs grey, femora white ventrally. FWL 21.8 mm (WS 40.5 mm), costa convex, termen straight; upperside costa dark brown, termen black, tapering from 1.0 mm wide at apex to nothing at tornus, radial veins above cell, cell midline, and proximal area of wing, bounded by the cubitus, inner margin, and an approximately diagonal line to the junction of vein CuA_1 with cell, all pale iridescent blue, remainder of wing dark iridescent blue, darkest at apex; underside white patterned with dark purple-brown markings that consist of two cell spots, a slightly curved postmedian band between the costa and vein CuA_2 , terminal and subterminal bands pale grey-brown. Hindwing costa slightly convex, termen convex; upperside pale iridescent blue, costa broadly (2.0 mm) grey-brown, termen dark brown (0.5 mm), inner margin to vein $1A+2A$ cream but dark brown along $1A+2A$ in the tornal region, vein CuA_2 produced as a short (3.0 mm) black tail tipped with white cilia; underside similar in pattern and colours to forewing but proximal one third, below cubitus and vein CuA_1 , darkened with purple-brown, tornus with a black spot at the termen and a diffuse line of pale iridescent blue above this, ending at vein CuA_1 . Cilia of forewing dark brown, tornally with some white scales; hindwing white.

Allotype female Antennal length 8.7 mm. In all details like the holotype male except that the wings upperside are predominantly pale iridescent blue. FWL 19.7 mm (WS 36.0 mm). costa and apical one third of wing area dark brown. Hindwing upperside costa and inner margin to vein $1A+2A$ broadly grey, termen dark brown following each vein inwards into blue area but tapering to finish before the veins join the cell.

Types — 4 ♂♂, 3 ♀♀. *Holotype* ♂ (ANIC Type Reg. No. 2373), NEW GUINEA, Kiunga, Fly River, 2 July – 31 Oct. 1957, W. W. Brandt. (Genitalia vial No. ANIC MJP 060); *allotype* ♀ and 3 *paratype* ♂♂ with same label data, in ANIC; 1 ♀, Lake Murray, Papua, 9. Nov. 1963, D. K. McAlpine., in AMS; 1 ♀, Base Camp, Utakwa R., sea level, Dutch N. Guin., Nov. 1912. A. F. R. Wollaston., in BMNH.

Diagnosis Closely related to *Arhopala axina* EVANS, 1957, from which it is immediately separable (in both sexes), by its slightly more rounded wings and much paler underside with narrower forewing postmedian band and more irregular hindwing postmedian band. The pale underside of *A. doreena* is very similar to that of *A. thamyra anthelius* STAUDINGER, 1888 (from Aru Is.) but the pattern of its markings is different. The dark blue apex of the male forewing upperside of *A. doreena* is more extensive than that of *A. axina* and occupies a little over half of the wing area, whereas that of *A. axina* is a little under half the wing area. The male of *A. doreena* also has narrower black wing margins upperside than those of *A. axina* and the cilia of its hindwing are white, not dark grey-brown as in *A. axina*. The male genitalia of *A. doreena* (Fig. 43) are typical of its group and, as in most *Arhopala*, show little or no useful diagnostic characters.

Comments *Arhopala* BOISDUVAL, 1832 is an extremely large genus of closely related species. Due to this, the similarity of the male genitalia and the absence of any

secondary sexual characters in the males (e. g. sex brands), the status of some taxa is uncertain. CORBET and PENDLEBURY (1978) suggest that natural hybridisations must occur more frequently in *Arhopala* than in any other Oriental lycaenid genus, so this may add to the confusion regarding their taxonomy. They list over 108 species in their key to the Malaysian *Arhopala*. The most comprehensive revision of the genus (treated as several genera), is that of EVANS (1957) which covers over 187 species.

A. doreena belongs to a small group of 5 species which EVANS placed under *Arhopala* proper, commencing with *A. thamyras* (LINNAEUS, 1758), *A. helianthes* GROSE-SMITH, 1902, and *A. arta* EVANS, 1957. *A. doreena* and *A. axina* are most closely related to the last listed species of the group, *A. axiothea* HEWITSON, 1862. Interestingly, all three species are sympatric at Kiunga in the Western Province of PNG, as ANIC specimens, all taken by BRANDT, have shown. The paratype of *A. doreena* from the Utaqua River was placed by EVANS (1957) in the series of his new species, *A. arta*. So far this specimen of *A. doreena* is the only one which represents the species from Irian Jaya. The 3 paratype males of *A. doreena* differ little from the holotype except for a slightly less dark, more mauve, proximal half to the hindwing in one specimen, and their size, the smallest of which is 20/37.5. The allotype and 2 paratype females are all smaller than their males and also exhibit little variation.

***Candalides afretta* new species**

(Figs. 44, 130 – 133)

Holotype male Antennal length 11.0 mm, shaft dark brown, ventrally with white at base of each segment, frontally without scales except at apex of each segment, club dark brown, tipped with orange, frontal half without scales; head white, dark brown at antennal bases, frons overlain with longer black hair scales; palpi white, tipped with black; thorax black, densely overlain with pale blue hair scales, ventrally white; abdomen (before removal for dissection), black suffused with pale blue, ventrally white; legs wholly white except for dark brown dorsally on tibiae and tarsi between white bands at distal margin of each segment. FWL 20.0 mm (WS 38.5 mm), costa and termen convex; upperside bluish-mauve, costa and termen narrowly lined with dark brown; underside glossy white marked with pale brown, consisting of a discocellular line, a zigzagged terminal and a subterminal line, which fuse above vein 1A+2A, and a diffuse subbasal patch between the cubitus and vein 1A+2A. Hindwing costa and termen slightly convex; upperside bluish-mauve, costa broadly, and margin narrowly, dark brown, a dark brown spot at tornus; underside glossy white marked with pale brown, consisting of seven well spaced spots in the subbasal region, a discocellular line and a zigzagged terminal and subterminal line, tornus with a large, clear, dark brown, almost black, spot, four similar spots between each vein, decreasing in size and definition towards vein M₁ where they end. Cilia of both wings upperside with grey-brown basal layer and a longer outer layer of translucent bluish-white scales; underside, except at veins CuA₂, CuA₁, and M₃ of the hindwing, which end in brown, translucent bluish-white.

Allotype female Antennal length 10.0 mm. Like holotype male in all but the following details: frons black centrally; thorax dorsally black suffused with white and less densely overlain with pale blue hair scales; abdomen grey dorsally. FWL 19.5 mm (WS 37.5 mm); upperside dark brown with a central patch of white that encroaches into cell apex, a faint subbasal suffusion of pale mauve scales; underside the terminal and subterminal lines fuse to form a prominent but diffuse pale brown patch at the tornus. Hindwing more rounded; upperside grey-brown with a white patch centrally between veins R_5 and M_3 that encroaches into cell apex so that the grey-brown discocellulars are highlighted.

Types — 1 ♂, 1 ♀. *Holotype* ♂ (ANIC Type Reg. No. 2374), NEW GUINEA, Western District, Rouku, Morehead River, 19.3–28.5. 1962, W. W. Brandt. (Genitalia vial No. ANIC MJP 007); *allotype* ♀ with same label data, in ANIC.

Diagnosis A distinctive species which, in appearance, most resembles *Candalides margarita* (SEMPER, 1897) but its forewings, in both sexes, are slightly narrower and more elongate. Both sexes of *C. afretta* are immediately recognisable by the fairly obvious tornal black spot of their hindwing undersides. This spot is small and part of an insignificant row of terminal spots in *C. margarita* and several other similar species. Like all other *Candalides* species the underside pattern of *C. afretta* is unique to both its sexes. It is slightly more zigzagged than in *C. margarita*, especially the subterminal line. The upperside of the male of *C. afretta* is of a less translucent, more matt blue, than that of *C. margarita* which looks slightly more mauve by comparison. At the hindwing tornus of the male of *C. afretta* the same dark brown spot of the underside is repeated but there is no such spot in *C. margarita*. The female of *C. afretta* has less extensive, almost absent, subbasal blue areas to its wings, whereas these are especially prominent on the forewings of *C. margarita*. The white subapical patch on the hindwing of the female of *C. afretta*, like that of *C. absimilis* (FELDER, 1862), is isolated from the costal margin, whereas it is connected with it in *C. margarita*. The diffuse grey tornal patch of the forewing underside of the *C. afretta* allotype is not present in the *C. margarita* female or those of related species. The male genitalia of *C. afretta* (Fig. 44) show that it belongs to the *C. absimilis* (FELDER, 1862) species group. The juxta is symmetrical, not asymmetrical, as mentioned by ELIOT (1973) for species of the *margarita* group. The aedeagus is also of the more complex form found in *C. absimilis* and is not like the more simple, tubular aedeagus of *C. margarita*. It has a short suprazonal section which ends in a single Chapman's process ventrally and a small patch of minute spines dorsally. Unlike *C. absimilis*, which has a medium sized proximal orifice and, therefore, has a coecum present, the proximal orifice of the *C. afretta* aedeagus is extremely large so that there is no coecum. The valva of *C. afretta* is more like that of *C. margarita* and is narrowly tapered to a point at its apex, whereas that of *C. absimilis* is much broader apically and tapers abruptly inwards to a pair of sharp projections.

Comments In his revision of *Candalides* HÜBNER, 1819 (treated as several genera), TITE (1963b) documented 26 species. Recently EDWARDS and KERR (1978) added a further species to this total so that, with the addition of *C. afretta* to the genus,

the number of species that it contains is now 28. Although *C. afretta* is, at present, only known from its holotype male and allotype female, the availability of both sexes has permitted its accurate evaluation because *Candalides* species exhibit little geographical, or individual, variation (although the uppersides of the two sexes are obviously very dimorphic).

Specimens of *C. margarita* in the ANIC, collected by BRANDT on the Morehead River (Western Province, PNG), show that the species is sympatric with *C. afretta* there. *C. absimilis* is known only from the hinterlands of the entire east coast of Australia. From the lack of material of *C. afretta* from elsewhere in PNG it appears that the species may be restricted to the lowland savannah belt of the south-west mainland. Possibly, therefore, its range may extend to the Merauke region of south-eastern Irian Jaya. It seems unlikely that *C. afretta* occurs on some of the islands of the Torres Strait or on the Cape York Peninsula of Australia (about 200 km distant from its type locality), nevertheless its geographical position in relation to that of the Australian *C. absimilis* is interesting.

***Ionolyce selkon* new species**

(Figs. 45, 134 – 135)

Holotype male Antennal length 7.5 mm, shaft dark brown, almost black, ringed with white at base of each segment, club dark brown, tipped with white; head and frons dark brown, white adjacent to eye margins; palpi dark brown, laterally white, ventrally peppered with dark brown; thorax black, dorsolaterally and ventrally overlain with long pale bluish-white hair scales; abdomen dark brown, ventrally pale grey-brown; legs dark brown, femora white ventrally, tibiae and tarsi striped with white. FWL 13.0 mm (WS 24.5 mm), costa and termen convex; upperside translucent dark mauve, costa grey-brown, broadest at base (0.75 mm), termen dark brown (0.5 mm); underside predominantly brown with an irregular white subterminal line, fainter white lines highlight markings which consist of a narrow submedian band, a discocellular spot and a broad (2.0 mm) postmedian band. Hindwing costa and termen convex; upperside translucent dark mauve, costa dark brown (1.25 mm), termen narrowly dark brown (0.5 mm), a diffuse white terminal line, more obvious at tornus, divided by dark brown vein CuA₂ which is produced as a short (2.0 mm) tail tipped with white cilia, a rounded dark brown, almost black, tornal spot between veins CuA₂ and CuA₁; underside similar in pattern and colours to forewing but tornus with two black spots, distally with bright iridescent turquoise scales, the largest spot between veins CuA₂ and CuA₁ highlighted proximally by a bright orange crescent, that at the extreme tornal angle vestigial with only a few obscure orange scales. Cilia of both wings brown.

Types — 6 ♂♂. *Holotype* ♂ (ANIC Type Reg. No. 2375), SOLOMON ISLANDS, Guava, Bougainville, 4000 ft. 2.5.1953. Collected by Wm. Brandt, Sir Edward Hallstrom.; *paratypes* 5 ♂♂ with same label data, 2 of which dated instead 7.5.1953 (one with ANIC genitalia vial AS 407), in ANIC.

Diagnosis A very distinctive species the male of which is quite different from the other two members of its genus. *Ionolyce selkon* can be told apart from *I. helicon* (FELDER, 1860) and *I. brunnescens* TITE, 1963 by its much darker mauve upperside with broader dark brown margins and the broader, darker brown markings of its underside. Its wings, like those of *I. brunnescens*, are much less elongate, and apically less acute, than those of *I. helicon*. *I. brunnescens* lacks the bright orange crescent of the tornal eyespot of *I. selkon* and its black spot has, distally, more bright iridescent pale blue scales than the line of iridescent turquoise scales in *I. selkon*. The male genitalia of *I. selkon* (Fig. 45) are distinctive. They differ from the other two *Ionolyce* species mainly in the configuration of the spine-like cornuti attached to the vesica of the aedeagus, and the shape of the valvae. The cornuti of *I. selkon* are of approximately the same size as those of *I. helicon* but they form a single, more distal group, not a medial group and separate distal group as in *I. helicon*, or a single medial group of much fewer (about 7), very much larger cornuti, as in *I. brunnescens*. The valva of *I. selkon*, like that of *I. brunnescens*, has a long ventral spine but, unlike that species, and like *I. helicon*, it does not have such a prominent lobe to its dorsal margin.

Comments According to TITE (1963a) *Ionolyce* TOXOPEUS, 1929 is little different from the genus *Nacaduba* MOORE, 1881. The genus previously only included *I. helicon* (Sri Lanka to New Guinea and northern Australia) and *I. brunnescens* (Solomon Islands). However, with the addition of *I. selkon* as the third member of *Ionolyce*, the stability of this small genus is increased because *I. selkon* is very different from 'normal' *Nacaduba* and has typically *Ionolyce*-like characters. Its male genitalia are especially characteristic of *Ionolyce* and possess the large aedeagus with its prominent cornuti, a character that is only found in the related genera *Prosotas* DRUCE, 1891 and *Paraduba* BETHUNE-BAKER, 1906, but not in *Nacaduba*.

Of *I. selkon*, BRANDT's notebook reads, "Only a series of ♂♂ caught. Crown Prince Range, at 4000 ft. [about 1300 metres], Bougainville. Clasp similar to *N. helicon* Feld., but a ssp. of that species flies on Bougainville at lower altitudes." The Bougainville subspecies of *I. helicon* to which BRANDT refers possibly requires its own name. He collected it, together with *I. brunnescens*, at Kieta in 1961. TITE (1963a) was unaware of this and recorded the easternmost subspecies of *I. helicon* *caracalla* (WATERHOUSE and LYELL, 1914), from only as far north-east (in PNG) as New Britain and New Ireland. As TITE apparently did not know of BRANDT's specimens of *I. brunnescens* they were not included in his type series of the species. He was, therefore, also unaware that *I. brunnescens* had a greater range than just Isabel and Gizo Islands in the Solomons. BRANDT also took *I. brunnescens* at Kukugai near Buin in southern Bougainville. The village of Guava is sited inland about 15 km south-west of Kieta, which is on the north coast of the southern half of the island. It is possible, therefore, that in some localities in Bougainville, all of the three *Ionolyce* species are sympatric.

The small type series of 6 *I. selkon* males exhibit little variation in size and pattern. The extent of white scales highlighting the margins of the bands underside is slightly variable. Also slightly variable is the width of the postmedian band on both wings. Its proximal margin can be either separate from, or fused with, the distal

margin of the discocellular spot (short band). The underside of *I. selkon*, in colour and general pattern, is somewhat similar to two Solomnn Islands species of *Erysichton*: *E. palmyra lateplaga* TITE, 1963, from Florida and Rubiana Islands, and *E. lineata vincula* (DRUCE, 1891), recorded from most of the Solomons, including Bougainvillie. Possibly there is a reason for the phenotypic similarity between these (and perhaps other) lycaenids in this faunal region.

***Catopyrops zyx* new species**

(Figs. 46, 136 – 138)

Holotype male Antennal length 7.5 mm, shaft dark brown, almost black, ringed with white at base of each segment, club dark brown; gead grey, white adjacent to eye margins, frons white laterally, fringed with long dark brown hair scales; palpi dark brown, laterally white; thorax black, overlain with long pale bluish-white hair scales, ventrally dark brown peppered with pale bluish-white, overlain with long white hair scales; abdomen (proximal, uncut, half), dark brown, ventrally white; legs white, tibiae and tarsi ringed with broad bands of dark brown. FWL 14.5 mm (WS 27.5 mm), costa and termen convex; upperside translucent bluish-mauve, costa and termen narrowly dark brown; underside grey from base to postmedian line, between terminal and subterminal lines almost white, wing patterned with grey spots edged with grey-brown and an outer white margin, these spots comprising a median cell spot, a discocellular spot, and an evenly curved postmedian band, a fainter spot below the cell spot between veins $1A+2A$ and CuA_2 , a zigzagged grey-brown subterminal line from apex to tornus, between this and the termen there are diffuse, subtriangular, grey-brown spots edged with white between each vein. Hindwing costa slightly convex, termen convex; upperside translucent bluish-mauve, costa pale grey (1.0 mm), termen narrowly dark brown, two tornal black spots between veins $1A+2A$ and CuA_1 , vein CuA_2 produced as a short (3.0 mm) dark brown tail fringed with white cilia along its ventral margin; underside similar in pattern and colours to forewing, tornus with two black spots in same positions as above but that between veins $1A+2A$ and CuA_2 is vestigial, both spots highlighted proximally by spots of dark orange. Cilia of both wings upperside grey-brown peppered with white; underside mainly white but tipped with grey-brown, wholly grey-brown at vein ends.

Allotype female Antennal length 7.5 mm. In all details, except the pattern of its wings upperside, like the holotype male. FWL 15.0 mm (WS 29.0 mm), termen slightly more convex than in male; upperside costa, apex, and termen broadly (3.0 mm) grey-brown, discocellulars slightly darker, remaining proximal area of wing diffuse iridescent pale blue. Hindwing upperside predominantly grey-brown with a straight white terminal line and an irregular white subterminal line, between veins CuA_2 and CuA_1 these lines enclose a black spot with a diffuse orange spot proximal to this, a very diffuse white zigzagged postmedian line, between this and the base a very diffuse region of iridescent pale blue scaling overlain by long translucent white hair scales.

Types — 2 ♂♂, 1 ♀. *Holotype* ♂ (ANIC Type Reg. No. 2376), SOLOMON

ISLANDS, Kieta, Bougainville, 14/2 1953. Collected by Wm. Brandt, Sir Edward Hallstrom.; *allotype* ♀, SOLOMON ISLANDS, Bougainville Island, Kukugai Village (Buin), 17.10.1960 – 2.2.1961, W. W. Brandt.; *paratype* ♂ with same label data as holotype but 2/3 1953. (ANIC genitalia vial No. AS 409), in ANIC.

Diagnosis Very closely related to its sister species *Catopyrops ancyra* (FELDER, 1860). *C. zyx* can be immediately separated from all subspecies of *C. ancyra*, however, by its more evenly curved forewing postmedian band underside. That of *C. ancyra* is more irregularly arranged and is composed of less closely aligned spots. The male upperside of *C. zyx* is of a paler, more translucent bluish-mauve than that of *C. ancyra*. The female uppersides of the two species are almost identical. Underside *C. zyx* is very similar in overall pattern to *C. ancyra amaura* (DRUCE, 1891) but its zigzagged subterminal line on both wings is lighter grey-brown and is not as broad as in *amaura*. The ground colour of the underside of *C. zyx* is also much lighter than in *amaura*. In this respect *C. zyx* closely resembles *Catopyrops florinda* (BUTLER, 1877). The male genitalia of *C. zyx* (Fig. 46), are very similar to those of *C. ancyra* but the dorsal margin of the valva is very finely and evenly serrated distally, whereas the valva of *C. ancyra*, in this region, is extremely irregular, uneven, and has no distinct teeth. The ventral spine (or hook) of the *C. zyx* valva is ventrally serrated only at its base with three fairly large teeth, whereas that of *C. ancyra* is finely serrated ventrally for the whole of its length. The distal patch of minute cornuti attached to the vesica of the *C. zyx* aedeagus is about three times larger in area than that of *C. ancyra*.

Catopyrops holtra new species

(Figs. 47, 139)

Holotype male Antennal length 7.5 mm. In all but the following details very similar to the *C. zyx* male: FWL 14.5 mm (WS 26.0 mm); ground colour of wings upperside slightly less translucent bluish-mauve. Wings underside darker, ground colour predominantly pale grey-brown, pattern of spots smaller and more separate so that postmedian band of forewing is more irregular. Hindwing underside has no black and orange spot between veins 1A+2A and CuA₂, three spots along the submedian line and one at the subapex are well rounded and dark brown so that they are somewhat prominent.

Types – 2 ♂♂. **Holotype** ♂ (ANIC Type Reg. No. 2377), NEW BRITAIN, Keravat, 20.9.1952. Collected by Wm. Brandt, Sir Edward Hallstrom.; *paratype* ♂ with same label data but dated 1.10.1952 (ANIC genitalia vial No. AS 411), in ANIC.

Diagnosis A distinctive species apparently most closely related to *Catopyrops keiria* (DRUCE, 1891) but interesting in that it exhibits a combination of features that are characteristic of two other members of its genus. The wing shape of the *C. holtra* male is very like that of *C. ancyra*, especially the apex of its forewing which is much more acutely pointed than that of the *C. keiria* male. Unlike *C. keiria* the ground colour of the underside of *C. holtra* is not predominantly white but, like that of *Catopyrops kokopona* (RIBBE, 1899), is mainly pale grey-brown. The four rounded, darkened, and

prominent spots of the *C. holtra* hindwing underside are also similar to those of *C. kokopona*. The male genitalia of *C. holtra* (Fig. 47), are, however, very similar to those of *C. keiria* with small, subtriangular valvae and a distally narrowly tapered aedeagus.

Comments Until now *Catopyrops* contained 5 species, according to TITE (1963a). *C. ancyra*, with its 16 subspecies, is the most widespread member of the genus, ranging from Sumatra to northernmost Australia (Cape York), and the Solomon Islands. *C. rita* (GROSE-SMITH, 1895) is known from Wettar, Java (Malang), and S. Sulawesi. According to COMMON and WATERHOUSE (1981) *C. florinda* occurs in Timor and nearby islands, northern and eastern Australia, and Fiji. However, two males of *C. florinda* from New Britain, and a female from mainland PNG (in KONE), show that the species is more widespread than has previously been recorded in the literature.

TITE (1963a) noted that *C. keiria* (Solomon Islands), and *C. kokopona* (New Britain), both exhibit divergent genitalia. It was with some hesitation, therefore, that he included them in *Catopyrops*. However, with the addition of *C. zyx* and, in particular, *C. holtra* to the genus, the stability and cohesiveness of *Catopyrops* is greatly increased. *C. holtra* has external characters which strongly link the 'normal' *C. ancyra* with *C. keiria* and *C. kokopona* (as discussed in the diagnosis of *C. holtra* above). It is obvious, therefore, that the seven *Catopyrops* species are closely related, and that they are correctly placed within a single genus, despite their genitalic differences.

It is interesting that BRANDT collected *C. ancyra amaura* at Kieta in Bougainville as TITE (1963a) only records this subspecies from Alu, Rubiana, and Malaita islands in the Solomons. At Kieta *C. ancyra amaura* and *C. zyx* are obviously sympatric. This confirms the specific status of *C. zyx* which might otherwise have been considered to represent merely a further subspecies of *C. ancyra*. The similarity of the two species also suggests that at least one or two of the many distinctive subspecies of *C. ancyra* may eventually be found to be full species. It is not certain whether *C. keiria*, from the Solomons, also occurs on New Britain, but possibly *C. holtra* replaces it there.

Udara davenporti new species

(Figs. 48, 140 – 143)

Only a very brief description, combined with a diagnosis, of this species is necessary due to its extreme similarity in size and appearance to all other members of its species group. These were detailed in the recent and comprehensive revision of the *Lycaenopsis* group of lycaenid butterflies by ELIOT and KAWAZOÉ (1983). The group consists of the following species: *Udara pullus* JOICEY and TALBOT, 1916, and *U. antonia*, *U. laetitia*, *U. sibatani*, and *U. kodama* (**stat. nov.**) which were all described by ELIOT and KAWAZOÉ, 1983. *U. kodama* was placed as a subspecies of *U. sibatani*, mainly because of its disjunct geographical position in relation to that species. I have closely studied the characters of the male of *U. kodama* and consider it to possess specifically distinct features; a conclusion with which J. ELIOT (pers. comm.) agrees.

Holotype male Antennal length 7.8 mm. Similar in size (FWL 14.0 mm, WS 28.0

mm), and external facies to all other species of its group, but immediately recognisable by its iridescent sky-blue upperside, which is similar to, but not quite as pale as, that of *Udara cardia* (C. FELDER, 1860). All of the other species mentioned above have mauve uppersides (various hues). The broad black margins of *U. davenporti* upperside most closely resemble those of *U. antonia*, on the forewing measuring 2.0 mm wide at the apex, decreasing to 1.0 mm at the tornus. The underside of *U. davenporti* is extremely similar to that of *U. kodama* in its pale grey-brown ground colour and white pattern. Its male genitalia (Fig. 48), are most like those of *U. laetitia*, except for its aedeagus, which is more like that of *U. sibatani*.

Types — 2 ♂♂. *Holotype* ♂, Mariamanda, ENGA PROV., PNG., C. DAVENPORT. 26-12-1982, I. F. T. A. coll. Alt. 1900 m. (Genitalia vial No. BMNH (v) 1082) ; *paratype* ♂, Kompiai. Nr. Koinambe Mission, Western Highlands PROV., PNG., C. Davenport, 17-10-1982, I. F. T. A. coll. Alt. 1250 m., in BMNH.

Comments In their recent monograph of the *Lycaenopsis* group of lycaenids ELIOT and KAWAZOE (1983) erected a new subgenus, *Perivaga*, to include all of the above mentioned species in addition to several others that are indigenous to the montane regions of mainland New Guinea. The extremely comprehensive work of these authors has permitted a better evaluation of *U. davenporti* to be made here. When spread to reveal its upperside, it is the most obvious species of its group. Its intense, iridescent sky-blue upperside is like no other species of its subgenus. The existence (to date) of two specimens of *U. davenporti*, both from widely separate localities, and the subtle but nevertheless distinctive features of its male genitalia, also confirm its specific status.

Mariamanda (a mission atop a range about 8 km NNE of Wabag, Enga Province : C. DAVENPORT pers. comm.), and Kompiai (upper Jimi River Valley, about 50 km ENE of Baiyer River Sanctuary, Western Highlands Province), are approximately 75 km apart. At both of these localities *U. davenporti* is sympatric with *U. sibatani*. At Kompiai it flies together with all other species of its genus that are known to occur in PNG, except *U. antonia* and *U. kodama*. At present *U. antonia* is known only by its holotype and two paratype males, one of which was also taken near Wabag. The paucity of specimens of this species and of *U. davenporti* is surprising since the males of all other *Udara* congregate, often in very large numbers, along creek sides at altitudes generally in excess of 1200 m, where they imbibe mineralised water. Usually, therefore, *Udara* males are extremely easily collected, in quantity.

Nymphalidae (Satyrinae)

Mycalesis giamana new species (Figs. 49, 144 – 149)

Holotype male Antennal length 10.0 mm, shaft dark brown, white ventrally for

half its length with a dark brown mid line, distal half unscaled, pale yellowish-orange, club dark brown, unscaled tip red-brown, ventrally orange, unscaled; head and frons dark brown, frons with a white V; palpi dark brown, peppered with white and with a white dorsolateral stripe; thorax dark brown overlain by fine hair scales that refract pale turquoise and orange, dorsolaterally pale grey-brown, ventrally with long cream hair scales; abdomen (before removal for dissection), dark brown, ventrally creamy-grey; legs creamy-brown, darkening gradually towards tarsi, femora white ventrally. FWL 22.0 mm, (WS 39.0 mm), costa convex, termen slightly convex, inner margin subbasally convex; upperside costa, apex, and termen to postmedian line, broadly dark brown, cell and subbasal region orange-brown, suffusing to orange-yellow across cell apex and remaining wing area to inner margin, a very small white spot centrally in the subterminal region, between veins CuA_2 and CuA_1 ; underside white, costa and upper half of cell broadly suffused with grey-brown, subbasally, below vein CuA_2 , an area of very glossy scales with a mauve iridescence, a broad brown submedian and postmedian band run from the costa to end just below vein CuA_2 , a subterminal row of six black eyespots, the white pupils of which have a mauve iridescence, are ringed with pale yellow and brown, these between veins CuA_1 and R_5 (basal eyespot largest: 3.0 mm diam.), termen bordered with lines of pale and dark brown, between these and eyespots a dark brown zigzagged terminal line. Hindwing costa and termen convex; upperside broadly dark brown at tornus and termen, suffusing to dark orange-brown, then orange-yellow, at cell apex, upper half of cell, and remaining wing area to costa, iridescent silvery-white; androconial scales of this region typical of *Mycalesis* with hair scale tuft pale brown, trough along base of vein R_s creamy-white, and surrounding sex brand black; two faint purple-brown eyespots (upper largest) between veins $1A + 2A$ and CuA_1 , ringed with pale yellow-brown; underside white, similar to forewing but costa not suffused with grey-brown, the submedian and postmedian bands run right across wing and seven subterminal eyespots form a complete row across the wing, largest between veins CuA_1 and CuA_2 (2.0 mm diam.). Cilia of both wings dark brown.

Allotype female Antennal length 9.8 mm. Head, thorax, abdomen, and legs similar to holotype male. FWL 22.0 mm (WS 41.0 mm), inner margin straight; upperside similar to male but colours somewhat paler, orange-yellow median area broader and extends to costa, a diffuse dark brown eyespot between veins CuA_2 and CuA_1 , with a pupil of iridescent white; underside similar to male but colours paler, white replaced by cream, all markings between postmedian line and termen heavily suffused with grey-brown, subterminal eyespots similar to male but only three subapically, and one (large) basally, submedian and postmedian bands more diffuse, narrower, wider apart than those of the male, between them the cream extends up to costal margin. Hindwing similar to male but rounder, termen more convex; upperside colours like those of forewing, central orange-yellow area more extensive than male; underside colours and pattern like those of forewing but with a complete subterminal row of eyespots, largest between veins CuA_2 and CuA_1 . Cilia of both wings dark brown.

Types — 5 ♂♂, 1 ♀. *Holotype* ♂, Hollandia, N.G., 1000 m, August 1932, rec. from

Janson. (Genitalia vial No. BMNH (v) 1052) ; *allotype* ♀, Kapaur, Dutch N. G., low c. XII. 96, Doherty. ; *paratypes* 1 ♂, Eilanden R., S.E. DNG, Meek, Dec. 1910., in BMNH ; 1 ♂, NEW GUINEA, Maprik (Sepik District) 600 ft. July 15 1950. Collected by Wm. Brandt, E. J. L. Hallstrom., in ANIC. 2 ♂♂, Beanford [=Beaufort River] 17/12 - '12. 3de Nw. Guinea Expeditie, 1912 - 13., in RML.

Diagnosis A distinctive species apparently most closely related to *Mycalesis cacodaemon* KIRSCH, 1877. The upperside of *M. giamana* is similar to that species but its underside is more like that of *Mycalesis biformis* ROTHSCCHILD and DURRANT, 1915 in that it is very pale. The eyespots of *M. giamana* are, however, not as large as those of *M. biformis*, and the parallel brown bands of its underside are also wider apart than in that species. The degree of sexual dimorphism exhibited by *M. giamana* is normal for its species group. The black scales of the male sex brand in the subbasal region of the hindwing upperside of *M. giamana* form a small, sharply defined patch, whereas in *M. cacodaemon* the black sex brand is much larger and more diffuse. The male genitalia of *M. giamana* (Fig. 49), are very similar to those of *M. cacodaemon* but its uncus is proximally more truncate with an apex that is not so strongly curved as that of *M. cacodaemon*. Its gnathos has brachia which are more vertically directed, with slightly inflated apices, and its valvae are longer and slimmer than those of *M. cacodaemon*.

Comments *Mycalesis* HÜBNER, 1818 is a large genus represented by many species throughout the Ethiopian and Indo-Australian regions. COMMON and WATERHOUSE (1981) state that there are more than 30 species in New Guinea, three of which also extend to northern and north-eastern Australia. *M. giamana* belongs to the *M. cacodaemon* species group which is endemic to New Guinea and in need of some revision (PARSONS in prep.). *M. giamana* has been overlooked in collections due to confusion regarding the identities of members of its species group. For example, BRANDT labelled his *M. giamana* male as *M. cacodaemon* in his collection (ANIC), and VAN EECKE (1915 : 64, species No. 53) made the same error with regard to the RML paratype males.

The type series of *M. giamana* shows that the species occurs in several widely separate localities throughout mainland New Guinea. It is unusual, therefore, that very few specimens of the species have been collected to date. Possibly this represents a collecting bias towards other, more popular, butterfly groups. At most of its localities *M. giamana* is sympatric with *M. cacodaemon*, based on the label data of both species. These localities are in need of clarification: Hollandia (holotype), now Jajapura in north-eastern Irian Jaya ; Kapaur (allotype), was sited near Fakfak on the Onin Peninsula, western Irian Jaya ; Eilanden River (paratype), flows south, source in Snow Mountains, central Irian Jaya, about 139°E ; Beanford (paratypes), near preceding locality. The label data for these two males (misidentified as *M. cacodaemon*) is correctly given by VAN EECKE (1915 : 64, species No. 53) as "Beaufort River 17 Dec. 1912." This is near Van Weelskamp, Lorentz River, Snow Mountain foothills, central Irian Jaya ; Maprik (paratype), East Sepik Province, PNG.

M. giamana varies little over its large geographical range. The two Beanford

males, and that from the Eilanden River, have a somewhat heavier grey-brown suffusion to the forewing costa than the holotype. The holotype male has the best developed eyespots of the series. Although, as stated above, the male sex brand of *M. giamana* is small and sharply defined, it is also somewhat variable in size. The two Beanford males, for example, have brands that are twice the size of those of the holotype. The brands of the Eilanden River male are intermediate in size. It is noteworthy that non worn male specimens (e. g. the holotype male, Eilanden River male, and one Beanford male), have a distinct mauve sheen to the brown of the upperside and the white of the underside, at certain angles. This has been lost in the paler, more worn, males of the series.

***Platypthima antapa* new species**

(Figs. 50, 150 – 154)

Holotype male Antennal length 9.5 mm, shaft dark brown, ventrally orange, unscaled except for an extremely sparse line of white scales middorsally and some dark brown scales at base, club unscaled, dark brown tipped with orange; head dark brown peppered with cream; palpi with a mixture of long dark brown, black, and cream hair scales, white basally; thorax dark brown, heavily suffused with cream, ventrally less extensively so; abdomen cream with a diffuse middorsal line of dark brown; legs dark brown, mottled with creamy-yellow. FWL 20.0 mm (WS 37.8 mm), costa and termen convex; upperside dark brown with a sparse suffusion of cream between inner margin and vein CuA_2 in median region of wing, inner margin overlain by long cream hair scales; underside dark brown, subterminal region with a diffuse band of paler brown, inner margin to just above vein $1A+2A$ suffused with cream, a diffuse, zigzagged, cream subterminal line runs between wing apex and vein CuA_2 . Hindwing rounded, slightly scalloped at veins, inner margin indented so that tornus is pronounced; upperside apex and termen broadly dark brown, remaining wing area, from base to postmedian line and just above tornus, suffused with cream, more densely so on cell veins, whole area overlain by long cream hair scales, the white band and a pair of eyespots of the underside show through by transparency of the wing; underside dark brown from base to midline, a broad white median band from inner margin tapers to a point at vein M_2 , parallel to this an orange-brown postmedian band, a subterminal row of six white spots, the two between veins CuA_1 and M_2 form the pupils of two large black eyespots ringed with pale yellow and dark brown, whole row of spots, except that at apex, broadly encircled with iridescent silvery-mauve, between this and a purple-brown terminal line there is a narrow band of cream. Cilia of both wings dark grey.

Allotype female Antennal length 8.5 mm. Similar to holotype male in all but the following details: Shaft of antenna pale orange suffused with brown at distal edges of segments. FWL 20.3 mm (Ws 38.0 mm); ground colour lighter, more yellow-brown; wings upperside slightly more heavily suffused with cream; white median band of hindwing underside slightly broader than that of male.

Types — 12 ♂♂, 1 ♀. *Holotype* ♂, MT. SAM SAM, SAMBIO No. 2 VILLAGE, MOROBE PROV., PNG., M. J. Parsons, MARCH 1981, I. F. T. A. coll. Alt. 1500 m. (Genitalia vial No. BMNH (v) 1102), in BMNH; *allotype* ♀, NEW GUINEA, Kodama Range, Mt. Kaindi, 4500 ft. 1.3.1952. Collected by Wm. Brandt, Sir Edward Hallstom.; *paratypes* 11 ♂♂ with same label data as allotype but with various dates in February and March 1952. (One with genitalia vial No. ANIC MJP 071), in ANIC.

Diagnosis Very closely related to *Platyphthima septentrionalis* NIEUWENHUIS and HOWARTH, 1969 (**stat. nov.** — see below) and *P. ornata* ROTHSCCHILD and JORDAN, 1905. *P. antapa* is easily recognised, however, by the clear white median band of its hindwing underside which shows through to its upperside by the transparency of the wing. Although very similar to *P. antapa*, in wing colour and pattern, the other two species have hindwing bands that are sullied by a brown suffusion and these bands do not show through to their uppersides. The uppersides of *P. antapa* and *P. septentrionalis* are otherwise very similar but that of *P. ornata* is much more extensively and densely marked with white. The male genitalia of *P. antapa* (Fig. 50), differ more from *P. septentrionalis* and *P. ornata* than the genitalia of the latter two species differ from each other. Its vinculum and tegumen ring is broader and straighter in lateral profile, whilst its uncus, in dorsal profile, is pointed, not spatulate like those of *P. septentrionalis* and *P. ornata*. The apex of the valva of *P. antapa* is spatulate and upturned, whereas the valvae of the other two species taper smoothly towards a rounded, inwardly curved apex. The aedeagus of *P. antapa* is also different in that it bears a distal patch of small to medium sized cornuti attached to its vesica, whereas the aedeagi of *P. septentrionalis* and *P. ornata* entirely lack cornuti.

Comments Until now the endemic New Guinean genus *Platyphthima* ROTHSCCHILD and JORDAN, 1905 contained 10 species, according to JORDAN (1924). NIEUWENHUIS and HOWARTH (1969) later described *P. septentrionalis* as a new subspecies of *P. ornata* from a specimen which they considered was a female. The holotype is, however, a male with distinctive facies and genitalia which, therefore, merits specific rank. This is confirmed by the fact that *P. septentrionalis* is sympatric with *P. ornata* at certain localities in PNG (PARSONS, in prep.).

To date *P. antapa* is known only from a very small geographical area, although it is likely (based on knowledge of the distributions of other species), that it will be located elsewhere in the central mountains of mainland PNG. The type locality for the species, Mt. Sam Sam (also known as Mt. Sunshine), is about 18 km north of the town of Bulolo in the Morobe Province, above the confluence of the Bulolo and Snake Rivers, and is centred on the (now abandoned) village of Old Sambio. Mt. Sam Sam is approximately 35 km north of Mt. Kaindi (see introduction), where the paratypes of *P. antapa* were taken and where the species is sympatric with *P. ornata*. The paratype males exhibit little variation. In size the smallest (unset) male has a FWL 17.0 mm. The only slightly variable feature of their markings is the width of the white median band of the hindwing underside.

A detailed study of *Platyphthima* led me to conclude that a major taxonomic ommission had been made by ROTHSCCHILD and JORDAN (1905). This was perpetuated

by JORDAN (1924) who did not realise that his Group C *Platyphima* merited generic distinction. The same conclusion was reached independently by NISHIZAWA and SIBATANI (1984) who described a new species, *Platyphima colorata*, that belongs with JORDAN's Group C species. Consequently a new genus, to contain these species, is described below.

***Altiapa* new genus**

(Figs. 51 – 55, 59, 63, 155 – 160)

Type species: *Platyphima decolor* ROTHCHILD and JORDAN, 1905 (Figs. 155 – 156).

Diagnosis A genus of the Hypocystini MILLER, 1968. Closely allied to *Platyphima* ROTHCHILD and JORDAN, 1905, with the following combination of characters:

Antenna more than half (about three-fifths) length of forewing costa, reaching to just below cell apex, club normal, well developed, spatulate. Eye densely hirsute. Labial palpus (Fig. 59) erect, terminal segment short and blunt. Legs typically hypocystine, male forelegs more modified than in female, tibiae and tarsi of mid and hind legs ventrolaterally spinose. Forewing costa slightly convex; hindwing tornus pronounced, inner margin abruptly concave between anal veins, termen prominently scalloped, long cilia at vein ends (shorter between). Venation (Fig. 63); forewing cell three-fifths length of costa, apex acutely extended so that discocellular below M_2 runs parallel to radius, R_2 arises freely from cell, just below its apex, inflation of vein $1A + 2A$ at its base is of a characteristic shape, its junction with narrow portion of the vein abrupt and not tapered, extended towards the tornus below the vein. Colouration of upperside dark brown, sometimes with pale brown bands medially on wings, or conspicuous orange patches, single or paired eyespots only in subterminal region of hindwing; underside usually cryptic, mottled with dark brown hues, usually with irregular creamy-white median bands, sometimes without these, or with large orange patches, a subterminal row of small eyespots on hindwing, forewing apex with, or without, very small subterminal eyespots.

Male genitalia All species with very similar genitalia (e.g. Figs. 51 – 52). Typically satyrine with long, straight, slightly curved (lateral profile), beak-like uncus of almost uniform width, or basally slightly waisted, with a pointed apex; brachia of gnathos normal, long, thin, spiniform, slightly upward and outward curved; valvae hirsute, elongate, narrow from middle to apex, with a hook, tooth, or spine-like process (according to species) dorsally, just before the apex, valvae sometimes deeply serrated ventrally, at base; juxta weakly developed, U-shaped; aedeagus simple, short, straight, tubular, with slightly flared orifice, distally vesica sometimes with minute cornuti.

Female genitalia All species with very similar genitalia (e.g. Figs. 53 – 55). Typically satyrine with a thinly sclerotised, somewhat membranous, corrugated, sternal pouch anterior to the ostium bursae, with a wide, ventrally directed opening;

eighth tergite reduced, somewhat membranous, slightly corrugated ventrally; lamella postvaginalis sparsely hirsute, transparent, membranous but with slightly sclerotised, very irregularly serrate distal margin; corpus bursae ovate, elongate with long, ribbon-like, parallel, longitudinal pair of signa; papillae anales normal, hirsute.

The main differences between *Altiapa* and *Platypthima* can be tabulated as follows:

FEATURE	<i>Altiapa</i>	<i>Platypthima</i>
<i>Adult wing pattern</i>	Figs. 155–160	Figs. 150–154
<i>Antenna</i>	3/5 length of FW costa	1/2 length of FW costa
<i>Labial palpus</i>	Fig. 59	Figs. 60–62
terminal seg.	short, blunt	long, pointed
<i>Forewing</i>	Fig. 63	Fig. 64
costa	slightly convex	strongly convex
apex	rounded	broadly rounded
cell	3/5 length of costa, apex extended	1/2 length of costa, apex normal
vein R ₂	arising freely, just before cell apex	connate with R ₃₋₅ from cell apex
inflation of vein 1A+2A	joins vein abruptly, tornally produced	tapers smoothly into vein
eyespot	usually present at apex underside	absent
<i>Hindwing</i>	Fig. 63	Fig. 64
tornus	distinctly extended	somewhat rounded
termen	prominently scalloped	only slightly scalloped
cilia	long at vein ends	short, of uniform length
<i>Male genitalia</i>	Figs. 51–52	Fig. 50
uncus (dorsal profile)	of almost uniform width	generally spatulate
gnathos	normal, spiniform	abnormal, usually fan-like
valve	hooked at apex dorsally, very similar in all species	usually spatulate at apex, very different in all species
aedeagus	short, straight, orifice flared	medium, upcurved, orifice not flared
<i>Female genitalia</i>	Figs. 53–55	Figs. 56–58
corpus bursae	size fairly uniform, ovate, elongate	size somewhat variable ovate, rounded
paired signa	always uniform, long, ribbon-like, longitudinally parallel	very variable, long, longitudinally ribbon-like or rounded

postvaginal region	membranous, sparsely hirsute with very irregularly serrate distal margin	entirely membranous
antevaginal region	ostium opens <i>below</i> a large or small, thinly sclerotised corrugated, membranous sternal pouch with opening ventrally directed	ostium opens <i>into</i> a deep or shallow, heavily sclerotised, smooth sternal pouch with opening distally directed
eighth tergite	reduced, somewhat membranous and corrugated ventrally	usually well developed, heavily sclerotised, hirsute ventrally along distal margin

Altiapa contains the following taxa, previously placed in *Platyphthima* :

decolor (ROTHSCHILD & JORDAN, 1905) **comb. nov.**

klossi (ROTHSCHILD, 1915) **comb. nov.**

pandora (JOICEY & TALBOT, 1916) **comb. nov.**

goliathina (JORDAN, 1924) **comb. nov.**

pedaloidina (JOICEY, NOAKES & TALBOT, 1916) **comb. nov.**

colorata (NISHIZAWA & SIBATANI, 1984) **comb. nov.**

Platyphthima retains the following taxa :

ornata ROTHSCCHILD & JORDAN, 1905 (Type species)

simplex ROTHSCCHILD & JORDAN, 1905

placiva JORDAN, 1924

leucomelas (ROTHSCCHILD, 1903)

homochroa ROTHSCCHILD & JORDAN, 1907

satisbona JORDAN, 1924

euphychioides JOICEY & TALBOT, 1916

dispar JOICEY & TALBOT, 1922

huonis JORDAN, 1924

septentrionalis NIEUWENHUIS & HOWARTH, 1969

antapa PARSONS, 1986

Comments MILLER (1968) mentions only *Argyronympha* MATHEW, 1886 of the Hypocystini as having an antennal length of three-fifths the length of the forewing costa (the remaining genera having antennae generally two-fifths to half of the length of the forewing costa). *Altiapa*, however, also has long antennae of the same proportion as *Argyronympha*. As noted by NISHIZAWA and SIBATANI (1984), JORDAN (1924) overlooked the importance his Group C of *Platyphthima*, especially the consistent differences in the male genitalia of the *decolor* group. In fact the characters that define *Altiapa* are so consistent and distinct that they leave no doubt as to the generic status

of this taxon, especially considering the level of character differences that have been used by previous authors to define various genera of the Hypocystini and within the Satyrinae in general.

Members of *Altiapa* are usually very cryptically coloured butterflies (e.g. Figs. 155 – 156, 159 – 160). They are indigenous to the central mountains ranges of mainland New Guinea and, as yet, have not been recorded elsewhere (*i.e.* on offshore islands). As all species occur at high altitudes between 1500 – 2700 m and are most usually encountered at about 2400 m, their dark colours, especially upperside, probably aid in the absorption of radiant heat from the sun. This would enhance their flight at the cooler, higher elevations. The same colour patterns also serve to camouflage the butterflies at rest. The recently described *A. colorata* (Figs. 157 – 158) is, however, most unusual for its genus in that it has large, bright orange patches on its wings. Probably, therefore, this species is mimetic of another lepidopteran although, if it feeds as a larva on a toxic foodplant, then it could itself be a distasteful species. If it is mimetic then possible models could include butterflies of the genus *Delias* (Pieridae) or day-flying moths of the Noctuidae (Agaristinae) or Arctiidae.

The male genitalia of *Altiapa* are all very similar in appearance. For example, the genitalia of the very distinctive *A. colorata* are extremely similar to those of *A. pandora* (Fig. 52), a more typically coloured species. This is in complete contrast to the somewhat less homogenous genus *Platyphthima* whose males have genitalia that are usually very different from each other; some species with extremely different genitalia. Also, whereas *Platyphthima* male genitalia exhibit little intraspecific variation, those of *Altiapa*, within limits, can vary markedly intraspecifically. For example, *A. decolor* (Figs. 155 – 156) has male genitalia (Fig. 51) that vary both individually and geographically. Its valvae are especially variable and can have a deeply serrated margin at the base, ventrally, or completely lack this feature.

The female genitalia of the two genera differ from each other in a way similar to those of the males. In *Altiapa* they are all fairly uniform in appearance (Figs. 53 – 55), whereas those of *Platyphthima* differ markedly from species to species (Figs. 56 – 58). This is especially obvious in the forms of the signa of the ostium bursae of the two genera and in the form of their antevaginal pouches.

An assessment of a plausible phylogeny for *Altiapa* is not easily made because, as HOLLOWAY (1974) points out, relationships within the Hypocystini are obscure. Several of the morphological features of *Altiapa* suggest, however, that the genus is perhaps more closely related to *Hypocysta* WESTWOOD and HEWITSON, 1850 than the more specialised genus *Platyphthima*, *Altiapa* possibly evolved from a *Hypocysta*-like ancestor contemporarily with the divergence (and subsequent specialisation), of *Platyphthima* from similar origins.

The wing pattern and male genitalia of *Platyphthima leucomelas* seem to indicate that the species has retained many of the features of the *Hypocysta*-like progenitor of its genus. The male genitalia of *Platyphthima*, however, also share many features with *Harsiesis* FRUHSTORFER, 1912 of the Hypocystini. *Platyphthima placiva* has the same vestigial, rounded brachia to its gnathos that are found in all *Harsiesis* species. Also,

many *Platyphthima* have valvae that are of a generally similar shape to *Harsiesis*.

Altiapa appears to be fairly closely related to *Hypocysta*, especially as its gnathos is not at all modified as is the usually fan-like gnathos of *Platyphthima*. *Altiapa* female genitalia, in common with those of *Hypocysta*, (and of those of *Erycinidia* ROTHSCILD and JORDAN, 1905 and *Pieridopsis* ROTHSCILD and JORDAN, 1905), have a corrugated, somewhat membranous, sternal pouch which further suggests a close relationship between the two genera. The valva of the male genitalia and wing shape of *Altiapa* are apparently specialised characters. Similar specialisations can be seen in the hypocystine genera *Erycinidia* and *Pieridopsis* which also occur at the same elevations and in the same habitats as *Altiapa* and *Platyphthima*. It appears, therefore, that at least *Hypocysta*, *Altiapa*, *Harasiesis*, and *Platyphthima* form a monophyletic group. *Hypocysta* and *Harsiesis* have remained in lowland to hill forest habitats (0–1200 m), whilst *Altiapa* and *Platyphthima* appear to have specialised to exploit the lower to upper montane forest zones (1000–2700 m).

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要 約

パプアニューギニアとイリアンジャヤに産する蝶類の 1 新属と 26 新種
(マイクル・パースンズ)

ここに記載・図示するのはイリアンジャヤないしパプアニューギニア産のタテハチョウ科(ジャノメチョウ亜科)の新属 *Altiapa* と、26 新種、その内訳はセセリチョウ科 17 種、シジミチョウ科 7 種、タテハチョウ科 2 種である。これらの分類学的位置はつぎのとおり: セセリチョウ科(アカセセリ亜科) — *Pradama*, *Pastria*, *grinpela*, *Kobrona*, *sebana*, *K. zadma*, *K. lexa*, *K. sota*, *Sabera*, *madrella*, *Mimene*, *celiaba*, *M. saribana*, *M. ozada*, *M. verda*, *M. wara*, *Ocybadistes*, *zelda*, *Telicota*, *bulwa*, *T. sadrella*, *T. brandti*, *T. mimena*; シジミチョウ科(アリノスシジミ亜科) — *Spalgis*, *asmus*; (シジミチョウ亜科) — *Arhopala*, *doreena*, *Candalides*, *afretta*, *Ionolyce*, *selkon*, *Catopyrops*, *zyx*, *C. holtra*, *Udara*, *davenporti*; タテハチョウ科(ジャノメチョウ亜科) — *Mycalesis*, *giamana*, *Platypthima*, *antapa*。このうち、*I. selkon* と *C. zyx* はブーゲンビル島、*C. holtra* はニューブリテン島(ともにパプアニューギニアの地域)に産する。*M. celiaba*, *T. sadrella*, *S. asmus*, *A. doreena*, *M. giamana* の 5 種は、パプアニューギニアとイリアンジャヤの両方に産する。のこりの種は、今日までのところ、パプアニューギニアだけから知られている。なお、*Udara kodama* ELIOT & KAWAZOE, 1983 (シジミチョウ科: シジミチョウ亜科), *Platypthima septentrionalis* NIEUWENHUIS & HOWARTH, 1969 (タテハチョウ科: ジャノメチョウ亜科) の 2 既知種の分類学的地位を改めた。(柴田篤弘 訳)

解 説

パースンズは、やせ型、きわめて長身のイギリス人である。1970 年代のなかばに、パプアニューギニアが独立し、政府の方針で、国産のチョウの採集・飼育による標本提供産業をおこすことになり、名採集地ワウ

と、ラエの中間にあるプロロの町に IFTA (Insect Farming and Trading Agency — 昆虫飼育販売機関) が設立された。このとき、それまで島内で活躍していた何人かのチョウ採集・研究家と政府のあいだで、種々の政治的な葛藤があり、最終的には外国から新人を導入することになった。パースンズはこうして IFTA に着任し、1979-1983 の 4 年間、パプアニューギニアの公務員として IFTA に拠り、各地の昆虫相と生態の調査に従事した。

1983 年かれはこの仕事から離れ、オーストラリア経由でいったん故国イギリスに帰ったのち、アメリカ合衆国西海岸に居を移して、自費でその期間に得られた結果の整理に従事する方針をたてた。その主要な労作は、現在準備中のニューギニアのチョウの図鑑である。単行本で新類位を記載することは好ましくないもので、いくつかの論文で別にその結果を発表することにした。すでにその第一報、シジミチョウ科の特産属 *Callictita* ハネモンシジミ (新称) の分類の改訂について多数の新種を含む論文が *Bulletin of the Allyn Museum* の 103 号 (1986) として発刊されている。

私自身は 1970/71 年と 1973 年に、おのおの 1 か月間パプアニューギニアに採集旅行を試み、その結果を仕事の片手間に発表してきた。それは牛歩のいとなみで、発表に手間どっているうちに、パースンズの仕事が追いついてきた。当然二人の興味と発見は、多くの類位で共通していた。私は次第に手がまわらなくなって、最近本誌に発表したカザリシロチョウの一部の分類の改訂 (蝶と蛾, 37: 1-14. (1986)) を最後に、他のやりかけの仕事はすべてパースンズに引きついでもらったり、道をゆずったりした。本論文における、ジャノメチョウの新属の記載 (p.146) や、東部島嶼におけるウラナミシジミの 3 新種の記載などはそれにあたる。もちろんこれに先立ち、カザリシロチョウでは、彼から新種について多くの材料とデータの提供を受けた。私のセセリチョウの材料は、現在日本で別の研究者によって検討されているが、それとパースンズの仕事・材料とのつきあわせは、今回はまったく行うことができなかった。しかしオーストラリアで進行中の高山産キマダラセセリの 1 種 (*Taractroceras* sp.) の記載については、パースンズはここで道をゆずっている (p.124)。西イリアンから西沢孝と私とでジャノメチョウの新種を記載 (蝶と蛾, 35: 35-36 (1984)) したとき、アリン博物館のリー・ミラーは、私たちに道をゆずった。私の方ではこの新種 (*Altiapa colorata*) を含むグループを新属として命名することについては、ジャノメチョウの専門家であるミラーと共同作業を提案もしたのだが、ミラーはそれについても全面的に私に道をゆずり、私はさらにパースンズの仕事と重複することを知って、かれにすべてをゆだねることにしたのである。このような相互協力の過程については、私は最近別に記した (やどりが 126 号, p.29) が、現在ニューギニアのチョウの分類についてはむしろ常道となっている。

ニューギニアのチョウについては、キャンベラにある ANIC (Australian National Insect Collection — オーストラリア国立昆虫博物館) におさめられたウィリアム・ブラントのコレクションがあり、これは現在ニューギニアのチョウのコレクションとしては、最良・最大のものである。私もこれまでの仕事でこれを充分に利用させてもらったし、ジョン・エリオットと川副昭人のルリシジミの分類の著作も、同じ特権を享受した。パースンズもこれにつづいているわけで、ここに発表される論文でも、多くの (しばしば他にまったくえられない) 材料を、このブラント・コレクションにあおいでいる。しかし採集者の W. ブラント自身と多くの図鑑の著者バーナード・ダブレラは、なんらかの理由で、同じ特権をわかつことができなかったようである。

新たに記載された諸類位については、私は多くのことを記すだけの知識がないので、ぬきとり式にいくつかのものについてだけ記す。

ニューギニアのチョウについては、最近次第に多くの研究者が小形のものについても論文を書くようになったが、それはシジミチョウについてのことで、セセリチョウについては、1949 年のイヴァンスの大著以来、まとまったものは発表されていない。

Spalgis シロモンクロシジミ属の未記載の新種がニューギニア島にいることは、西イリアン (イリアンジャヤ) の標本を見て私も気づいていたが、今回ここに記載されることになった。

ジャノメチョウの新属 *Altiapa* は、従来 *Platypthima* にいられていた種の半数近くを含み、*Platypthima decolor* をタイプとして命名された(p.146)。私たちが最近本誌で記載した、西イリアンの *colorata* も、このあたらしい属に移される。*Platypthima* と *Altiapa* は、♂交尾器にいちじるしい差があり、どうしても別属にせねばならぬものである。*Platypthima* の交尾器が非常にかわっており、*Altiapa* のものはむしろ正常である。ニューギニア高地に産する近縁属 *Pieridopsis*, *Erycinidia* をふくめ、属の類縁関係を再検討する必要はまだ残っているようである。

この論文では、チョウの諸科の分類法は、非相分形式をとっている。これは Paul R. EHRLICH (*Univ. Kans. Sci. Bull.* **39**: 305–370 (1958)) に発し、I. F. B. COMMON (1964), COMMON & D. F. WATERHOUSE (1972) のオーストラリアのチョウの図説によって踏襲されひろめられたもので、今日次第に多くの研究者が採用するようになってきている。私は従来、しろうとがそれと認識できるジャノメチョウのようなものを、亜科としてしか認めないことにもとづいて、チョウの科の非相分には批判的であったが、最近の James A. SCOTT (*J. Res. Lep.* **23**: 241–281 (1984 (85))) のチョウの系統発生の論文を見るにおよんで、科学的にはこの方法を採用することが、所詮は正しいと思うようになった。これはまた、現在諸亜科の区別のむづかしいグループについて、ある程度の解決策となるものである。このような非相分の方法によれば、アゲハチョウ上科は、アゲハチョウ、シロチョウ、シジミチョウ、タテハチョウの4科にわけられるわけで、シジミタテハはシジミチョウ科の亜科として、ジャノメチョウ、ワモンチョウ、モルフォチョウ、マダラチョウ、トンボマダラなどは、タテハチョウの亜科として、他の諸亜科にまじって並列されるように格をおとすことになる。本論文での、各類位の亜科・科への所属は、こういう理由で、日本での通例の習慣とは一致しないところがある。むしろ日本で、これまでこの問題についてだれも論じなかったことが、欠陥ととられるべきものであろう。このような非相分方式によれば、従来のタテハチョウ、シジミチョウ系の諸群で、亜科、族としてあつかわれていた多くのものは、それぞれ族、亜族となる。すなわちシジミチョウ科、*Lycaeninae* シジミチョウ亜科、*Theclini* ミドリシジミ族のたとえば *Arhopala* 群の亜族(どのように語尾を区別するのかわからない)というようになるので、下の方の上位類位の段階がつまってきた不便だ、ということにもなるようである。(文責 柴谷篤弘)

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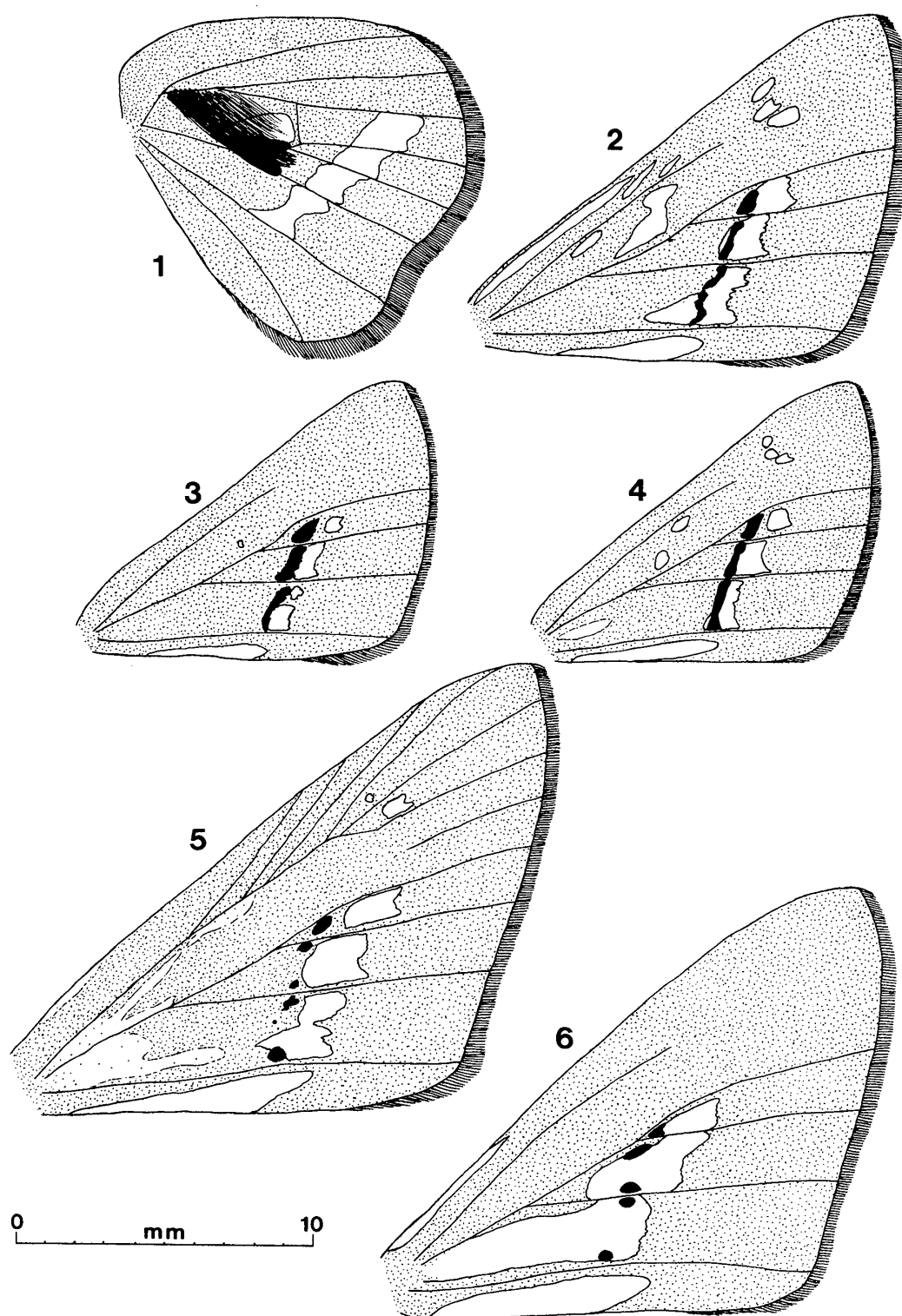
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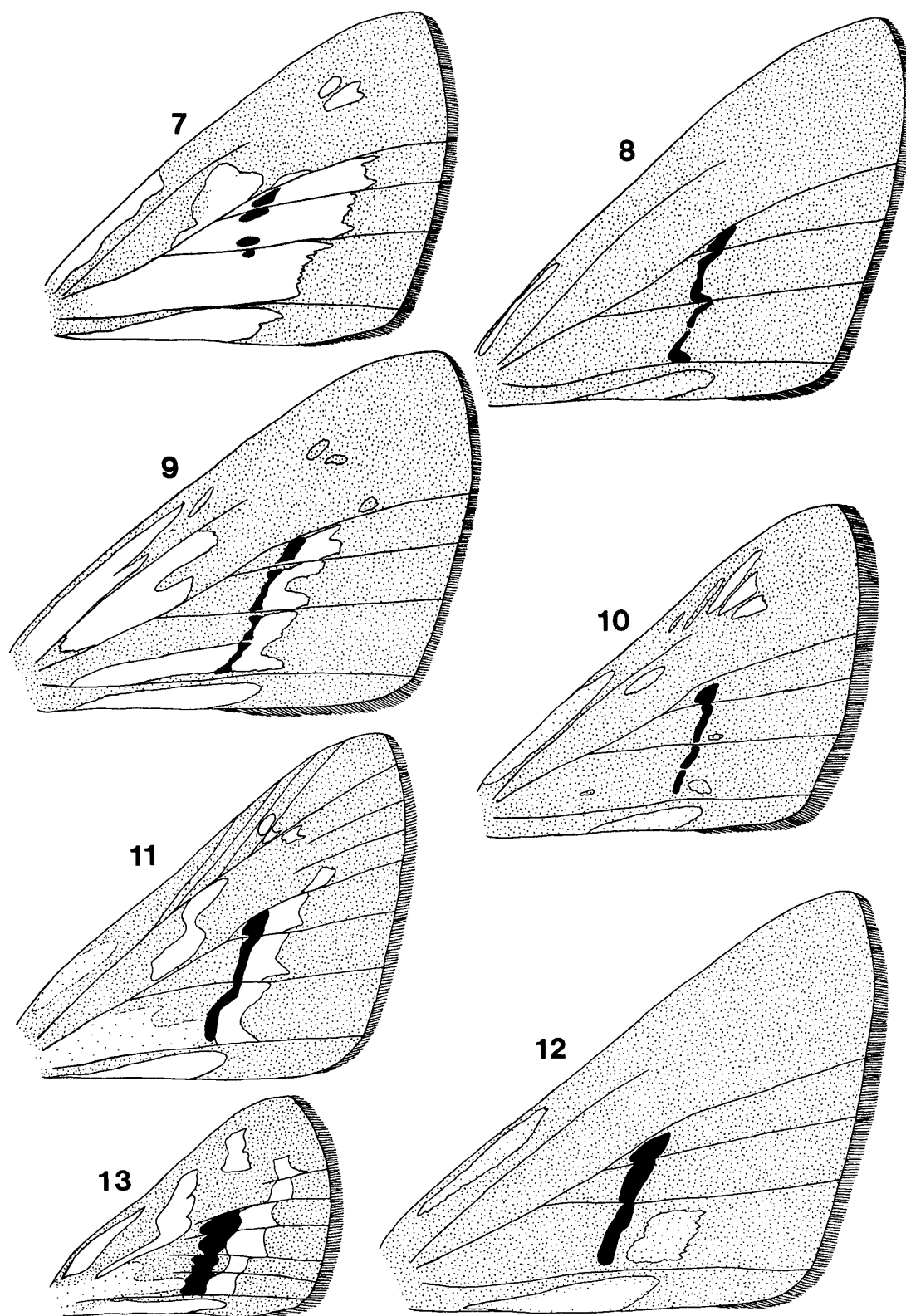
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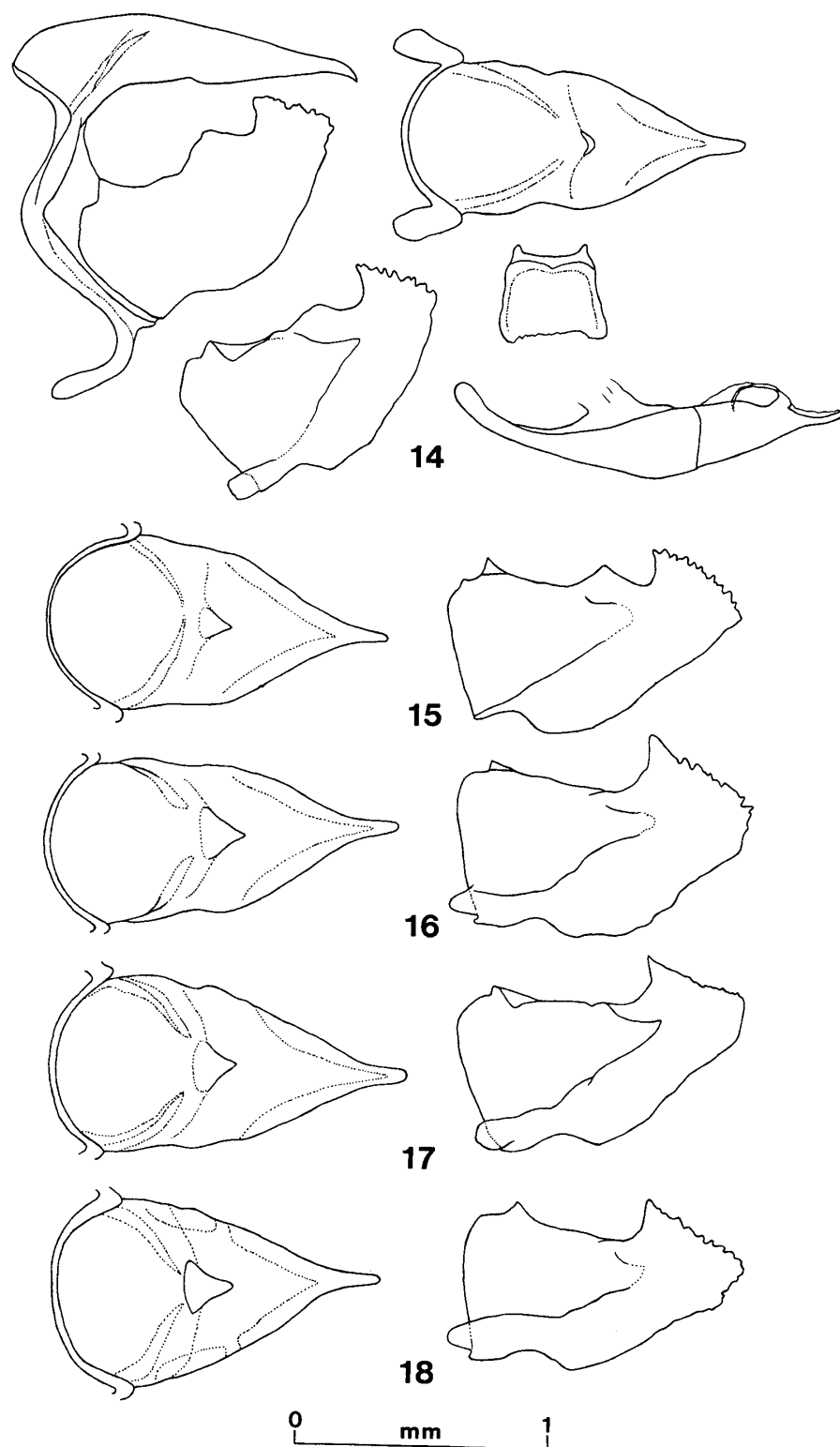
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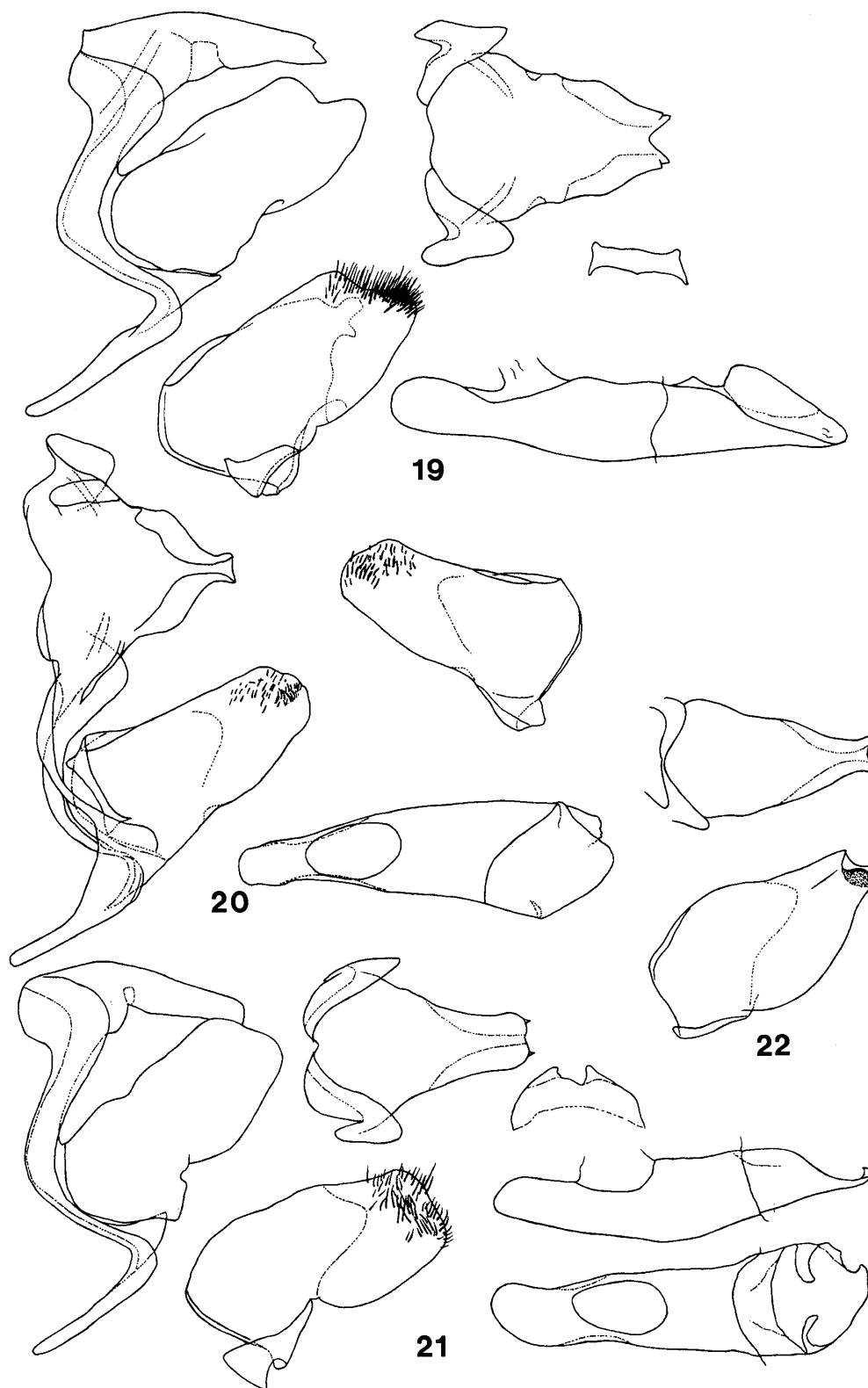
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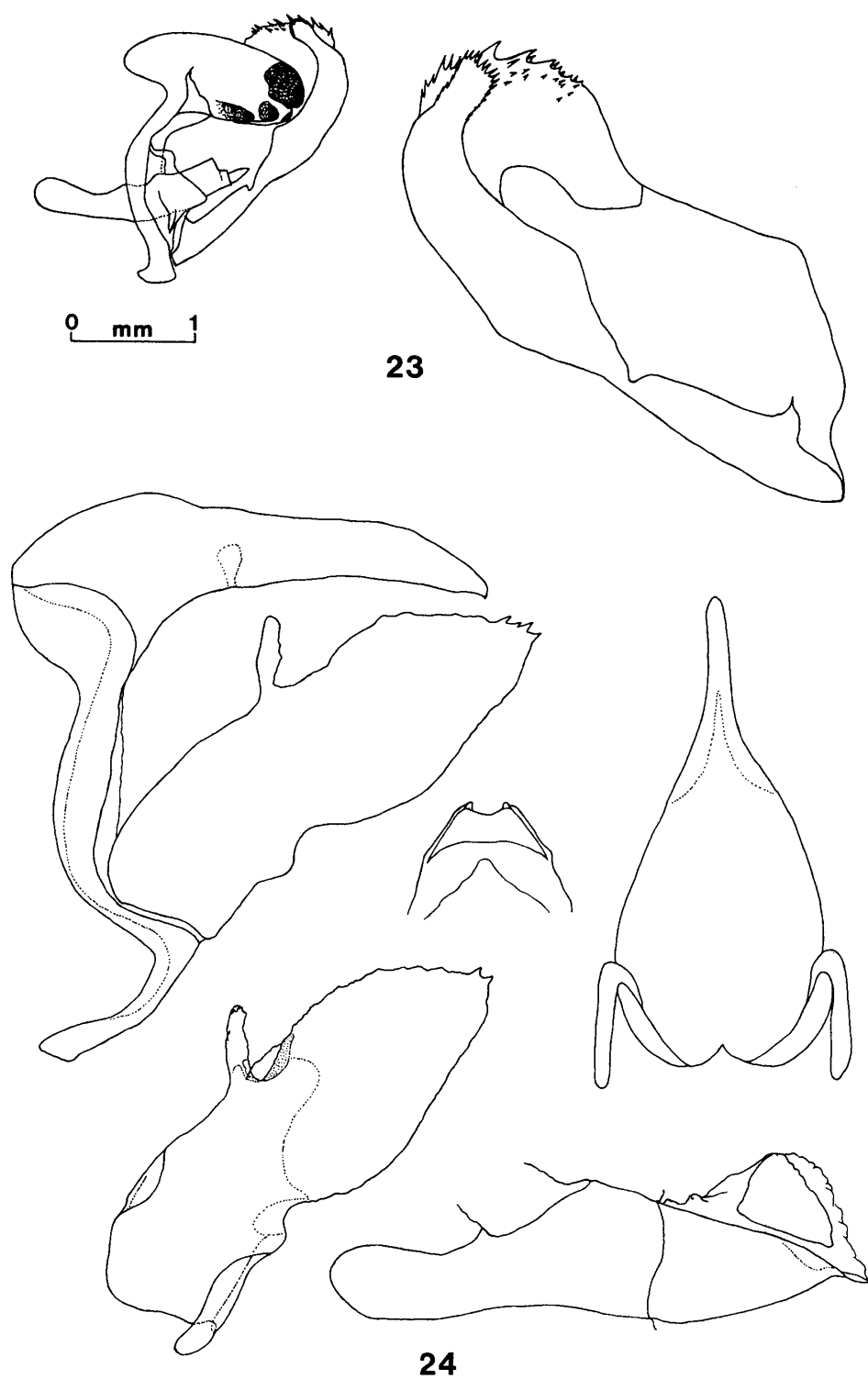
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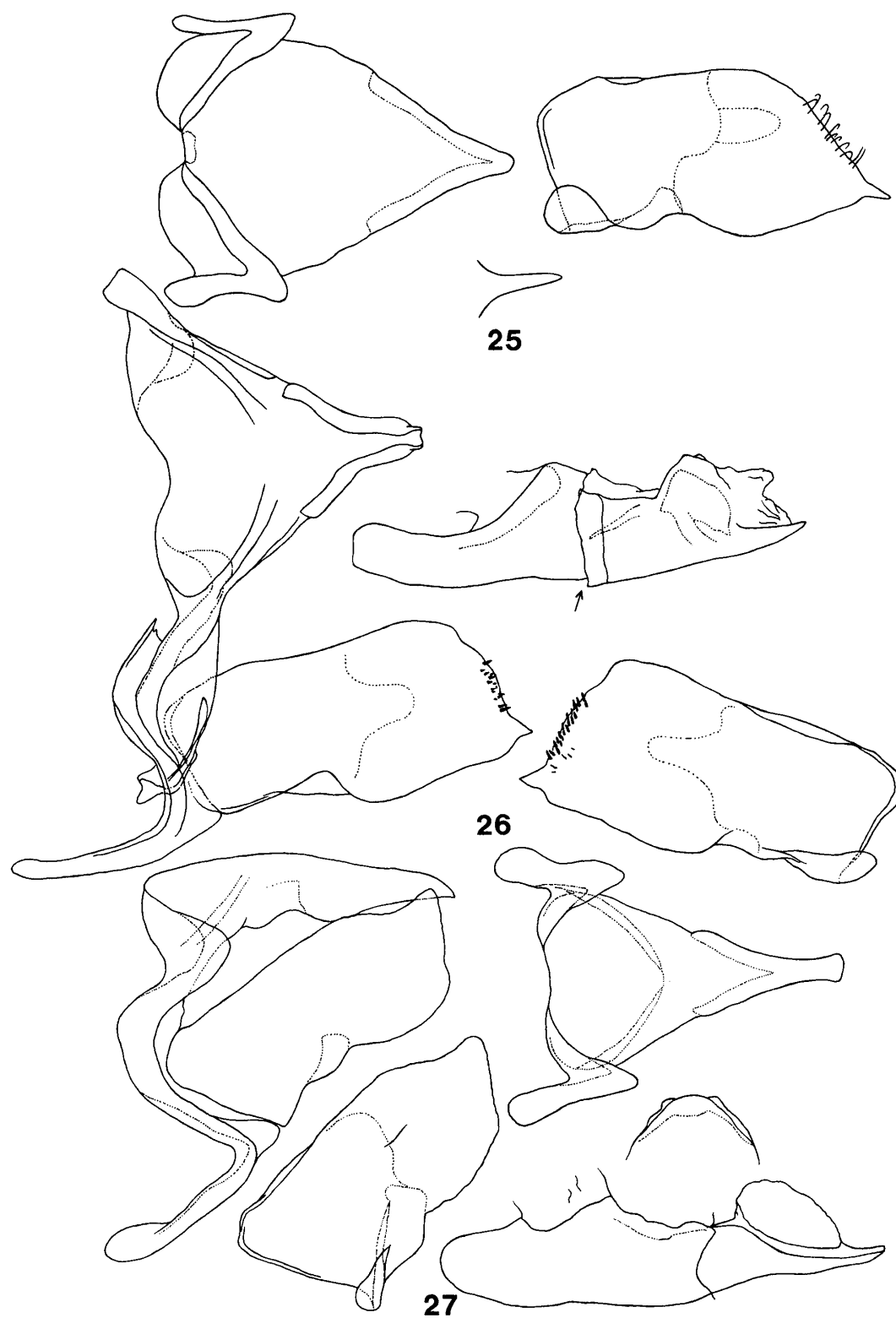
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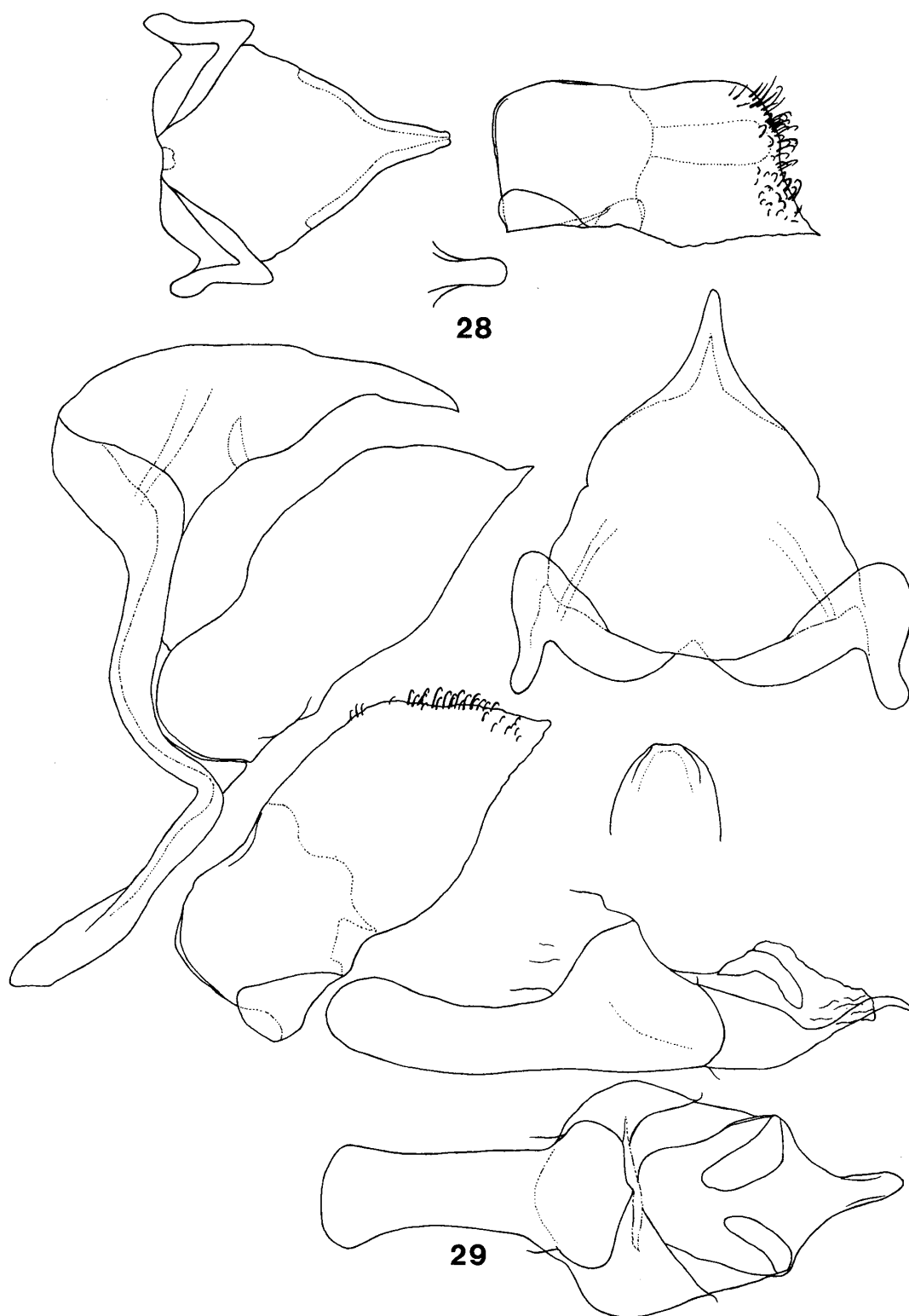
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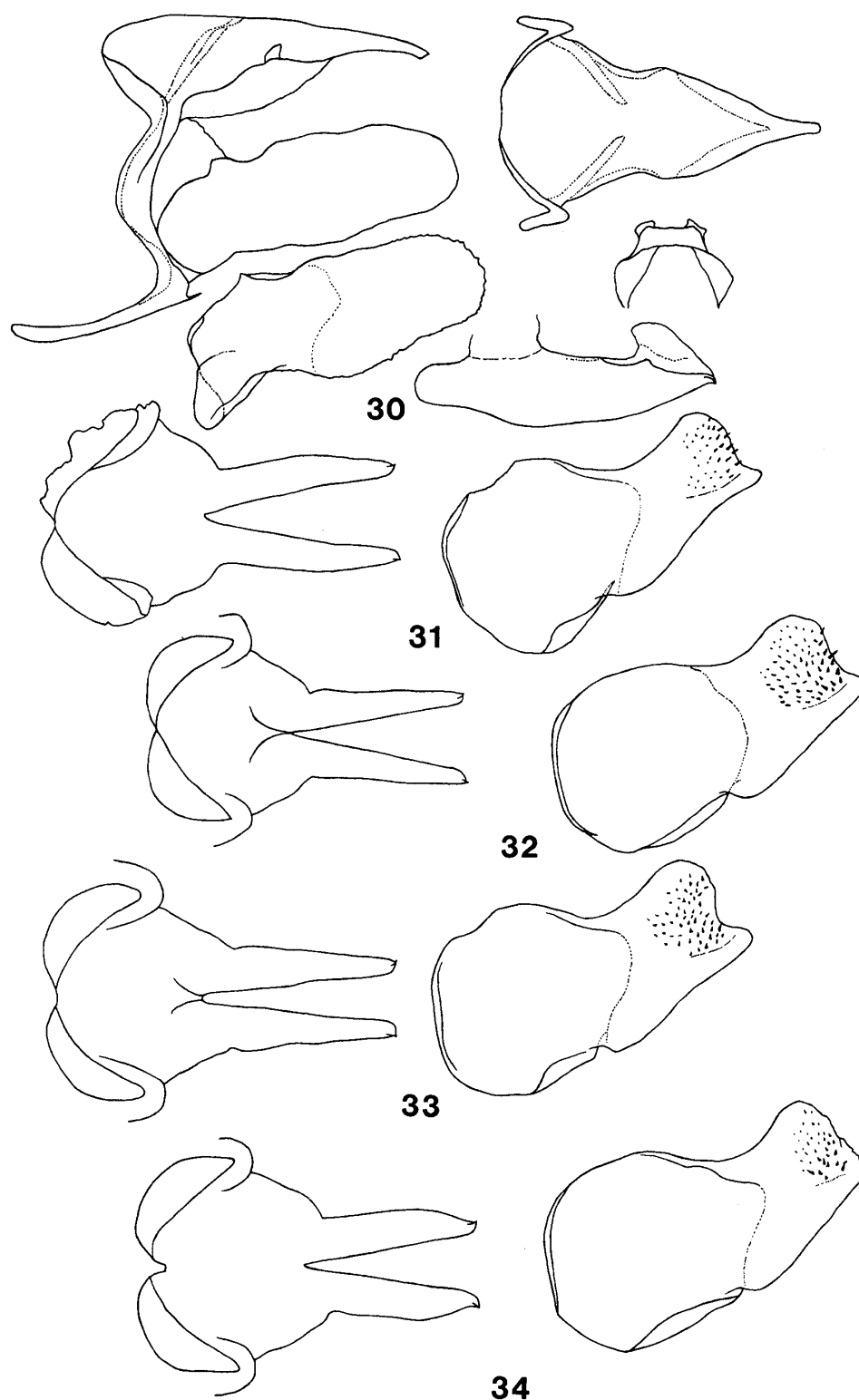
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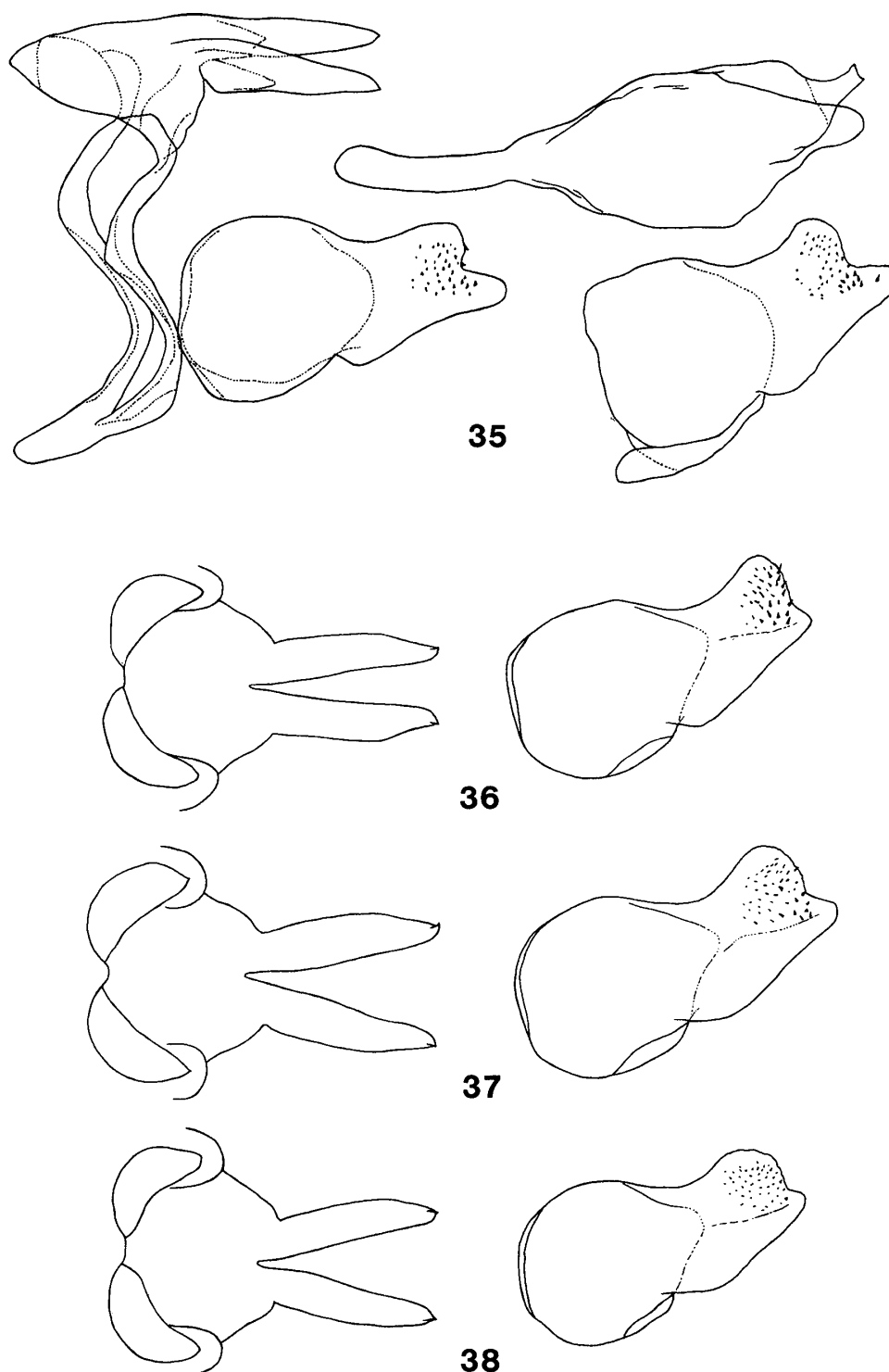
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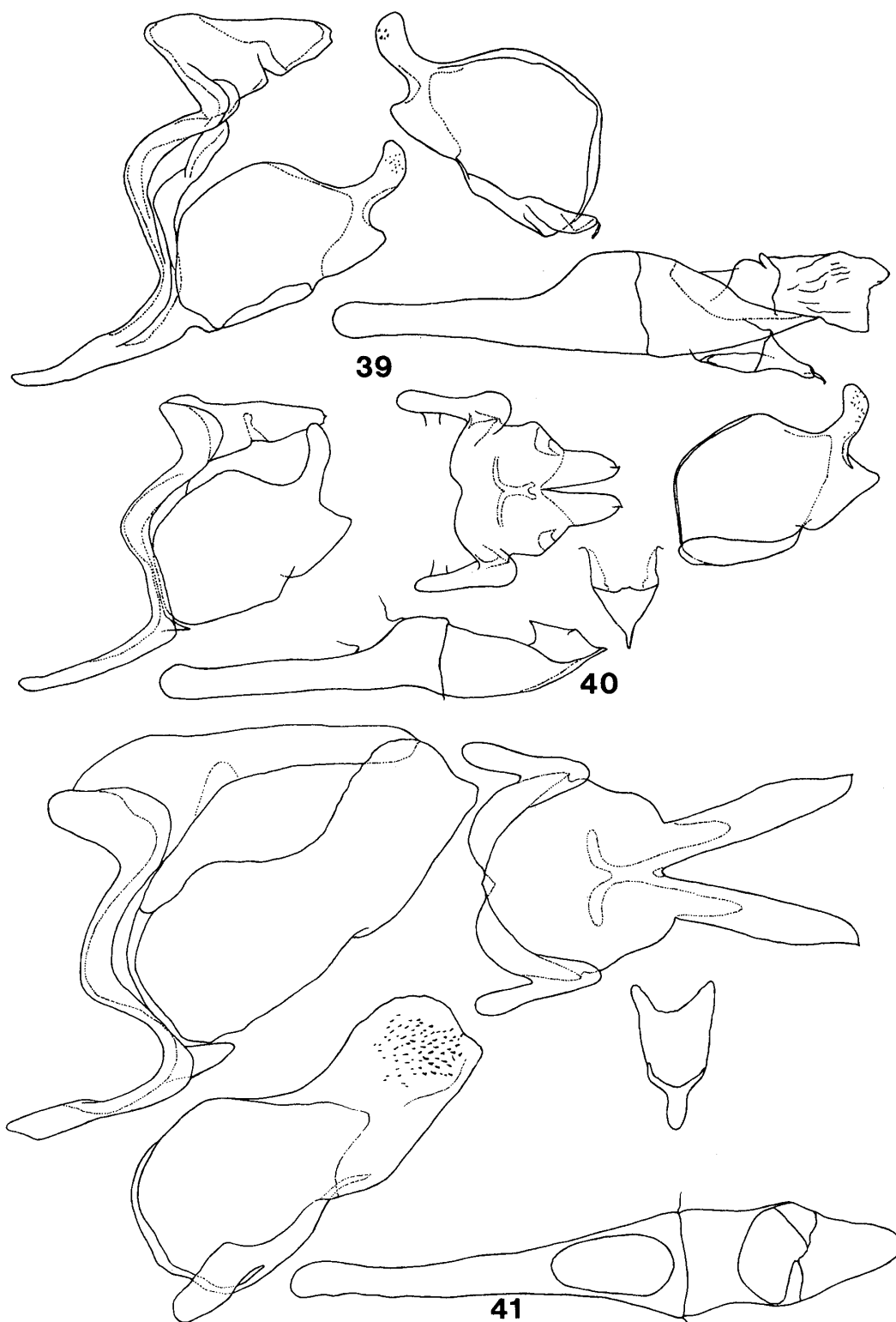
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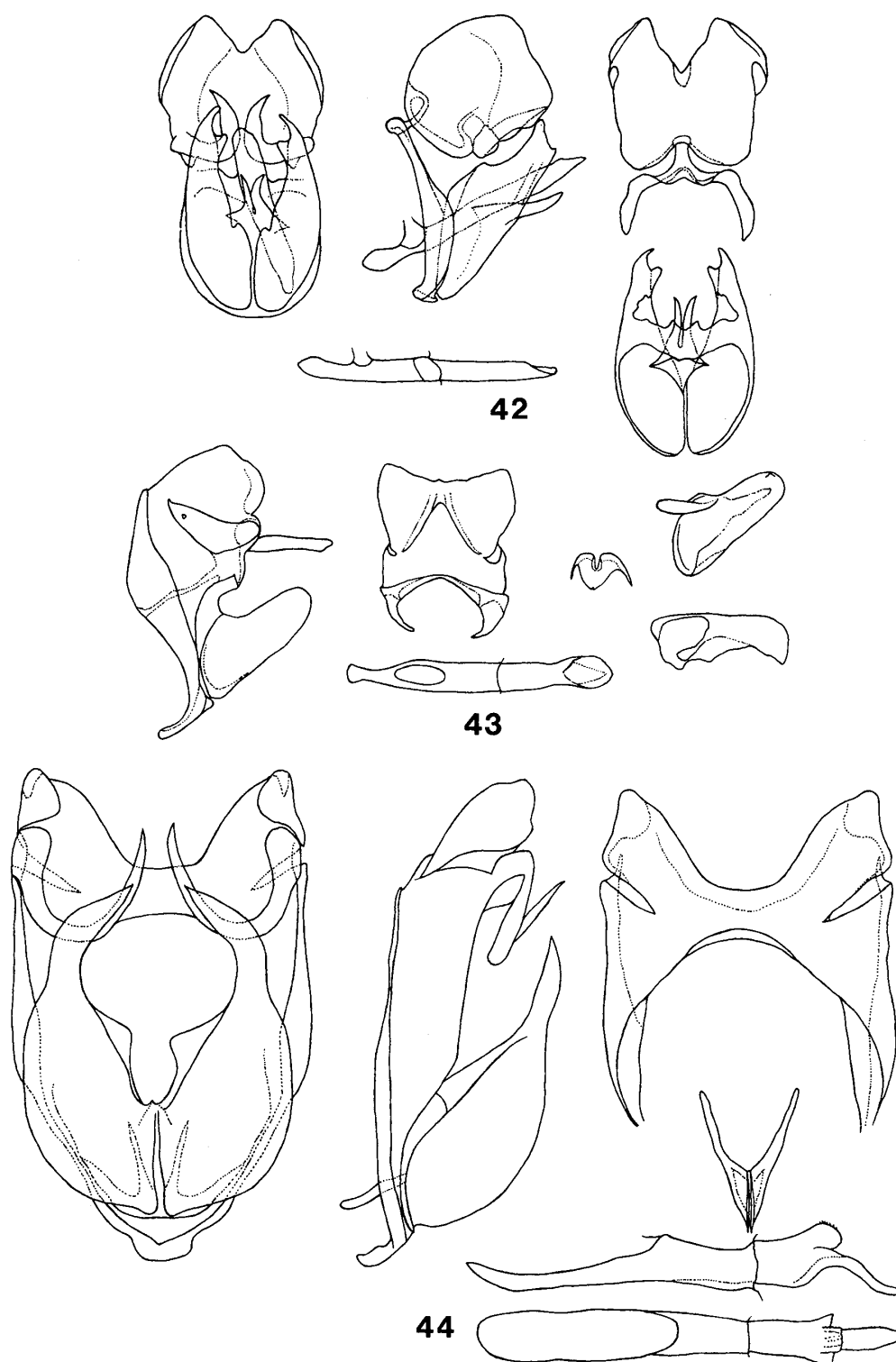
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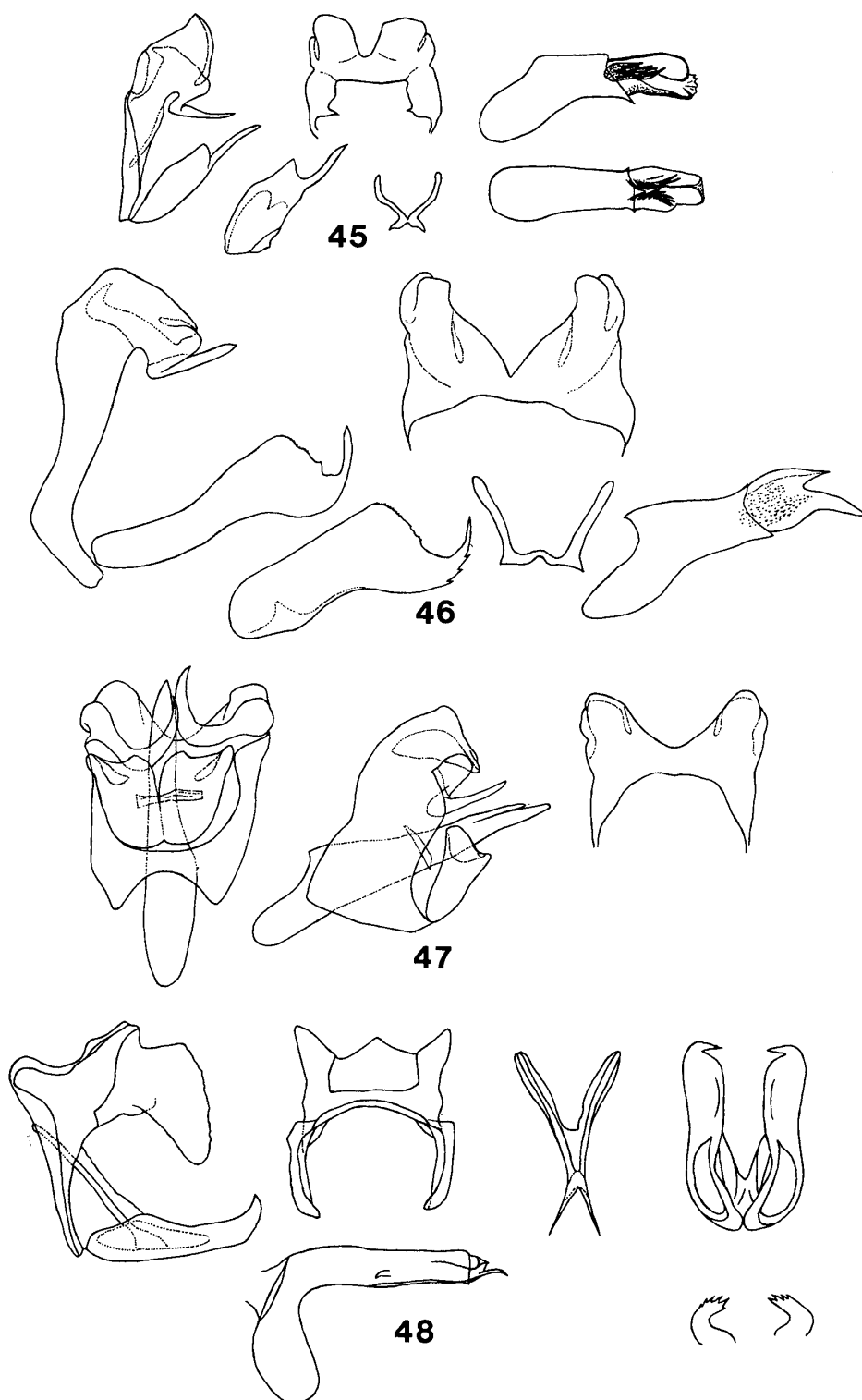
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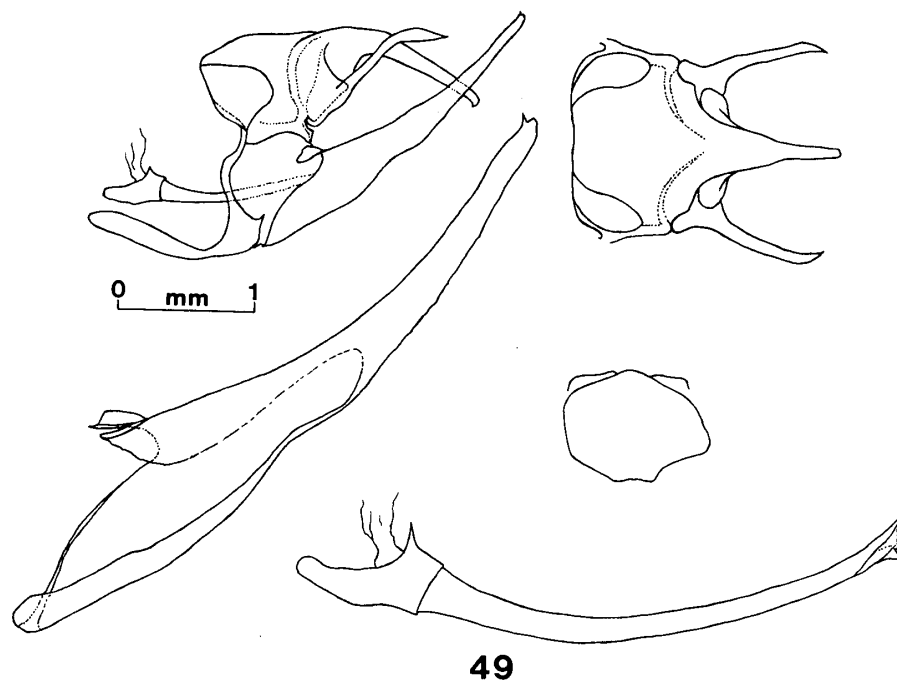
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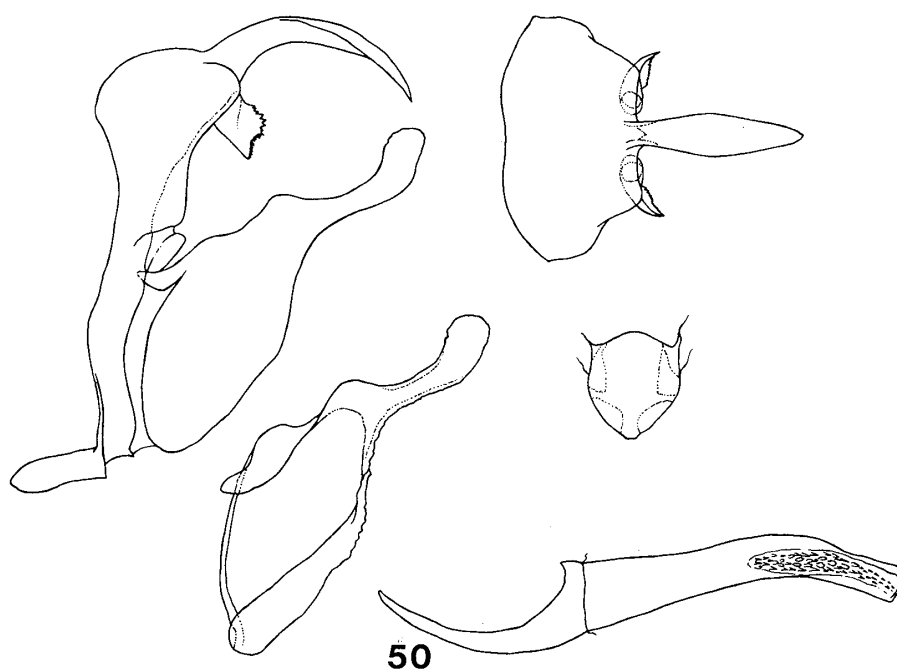
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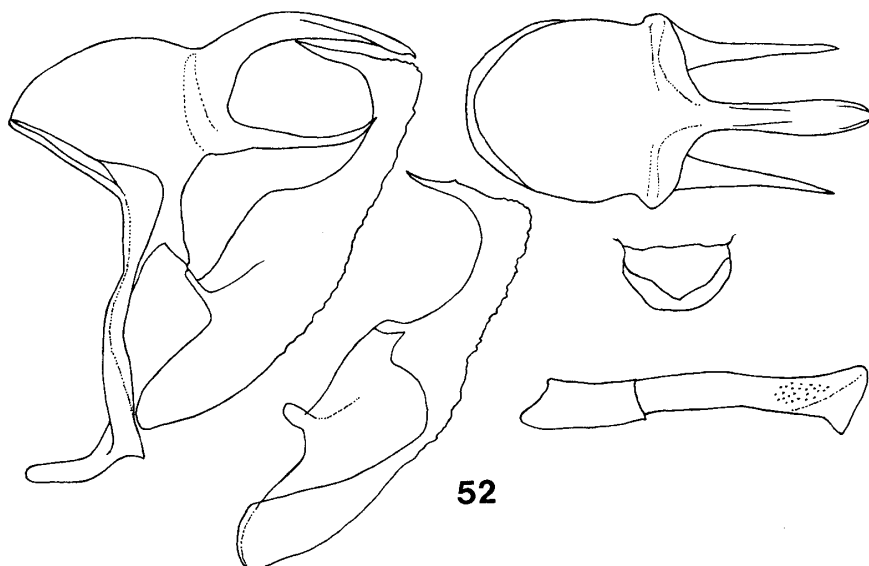
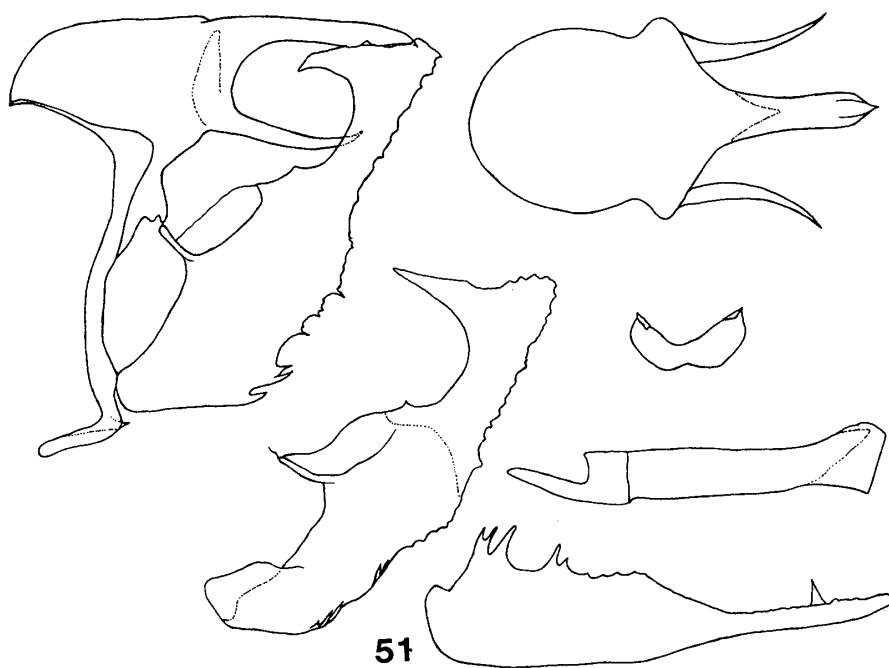


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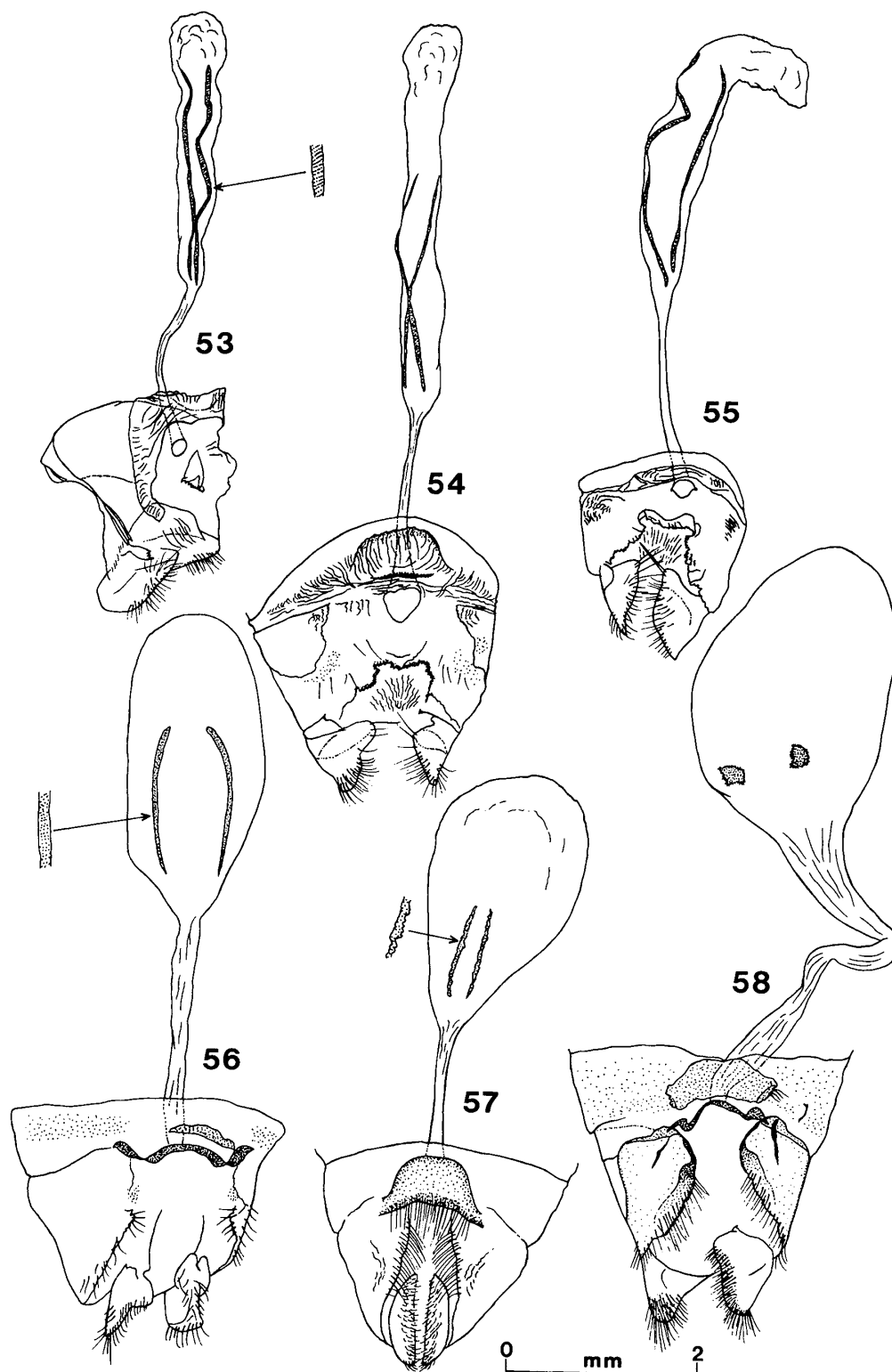


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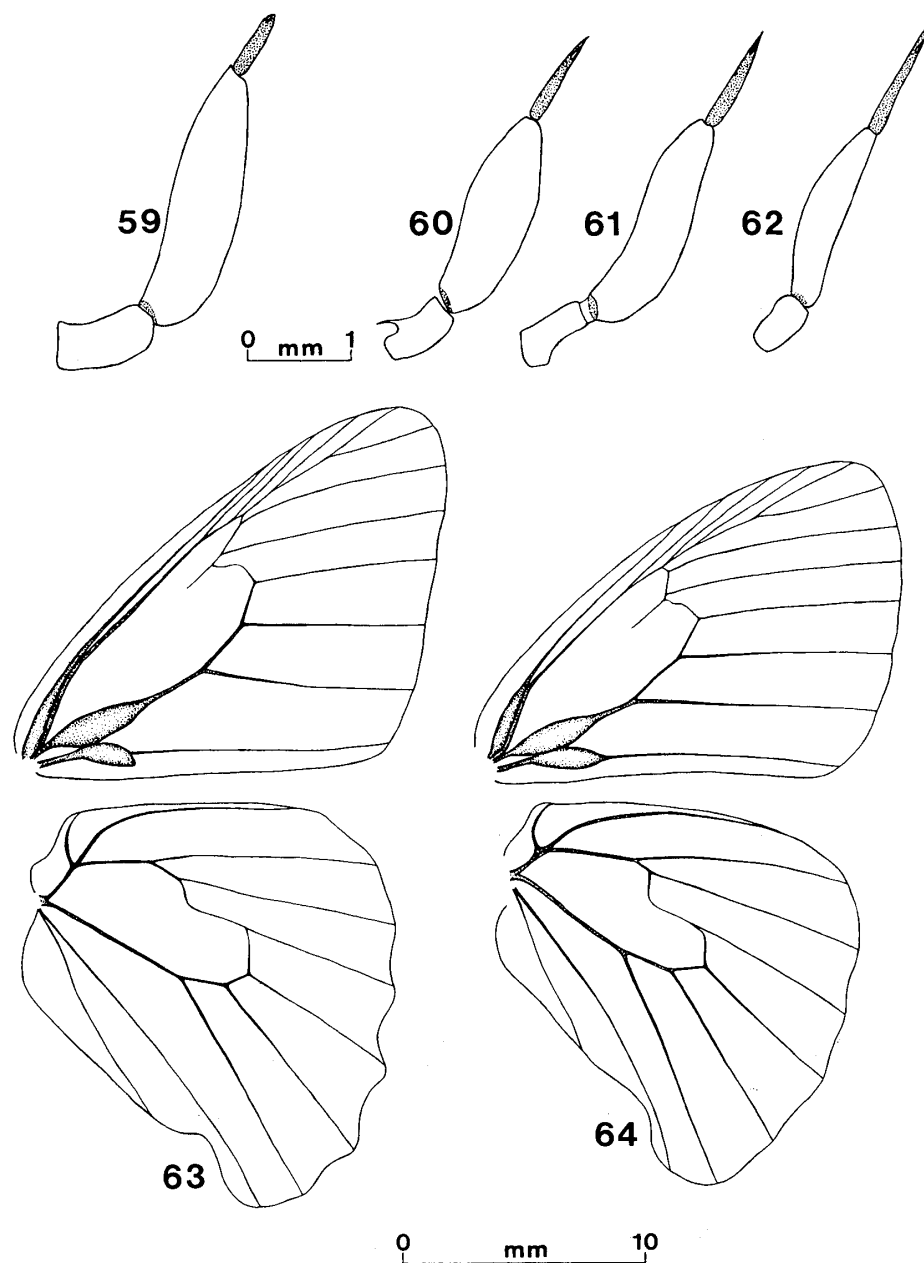
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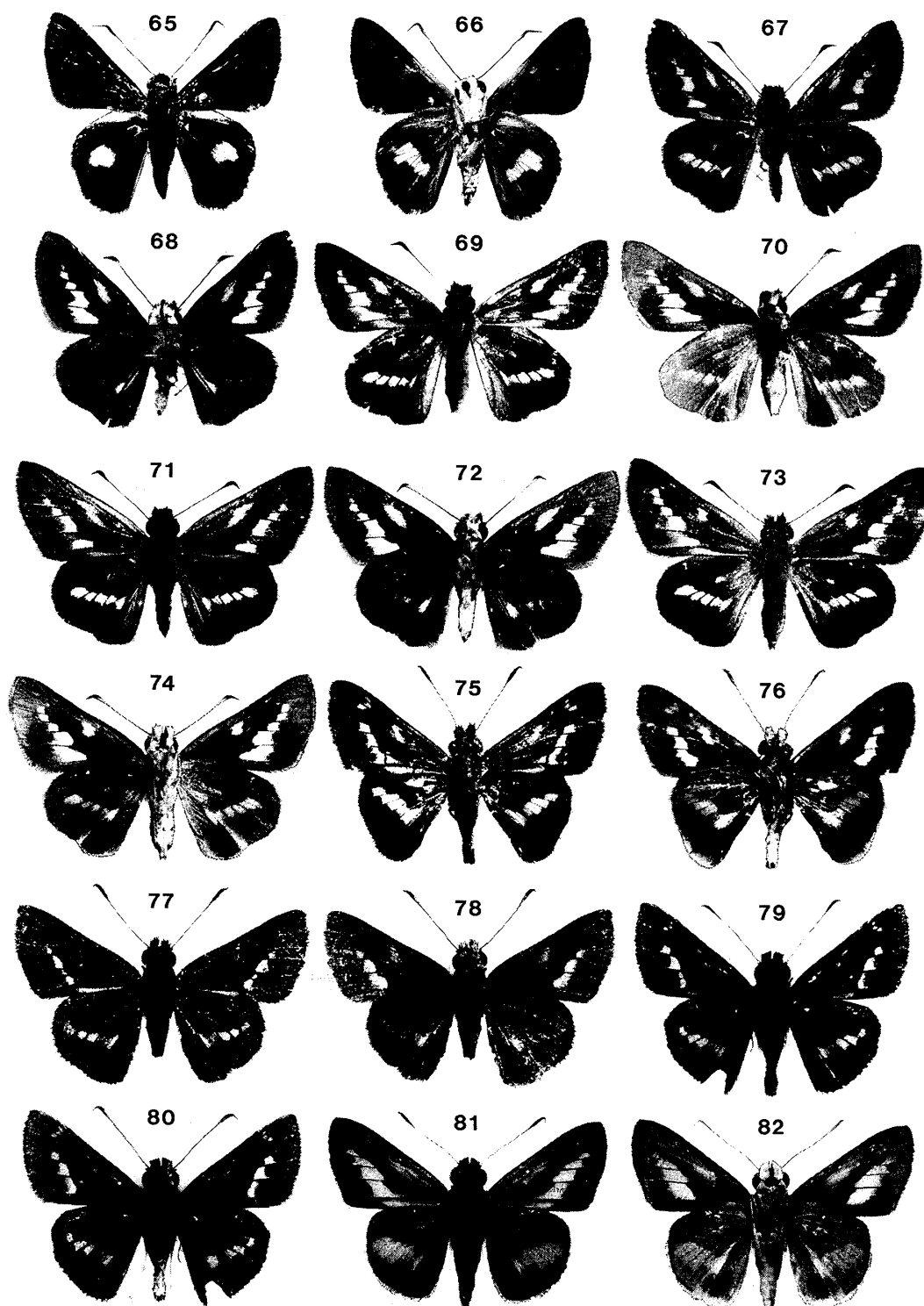
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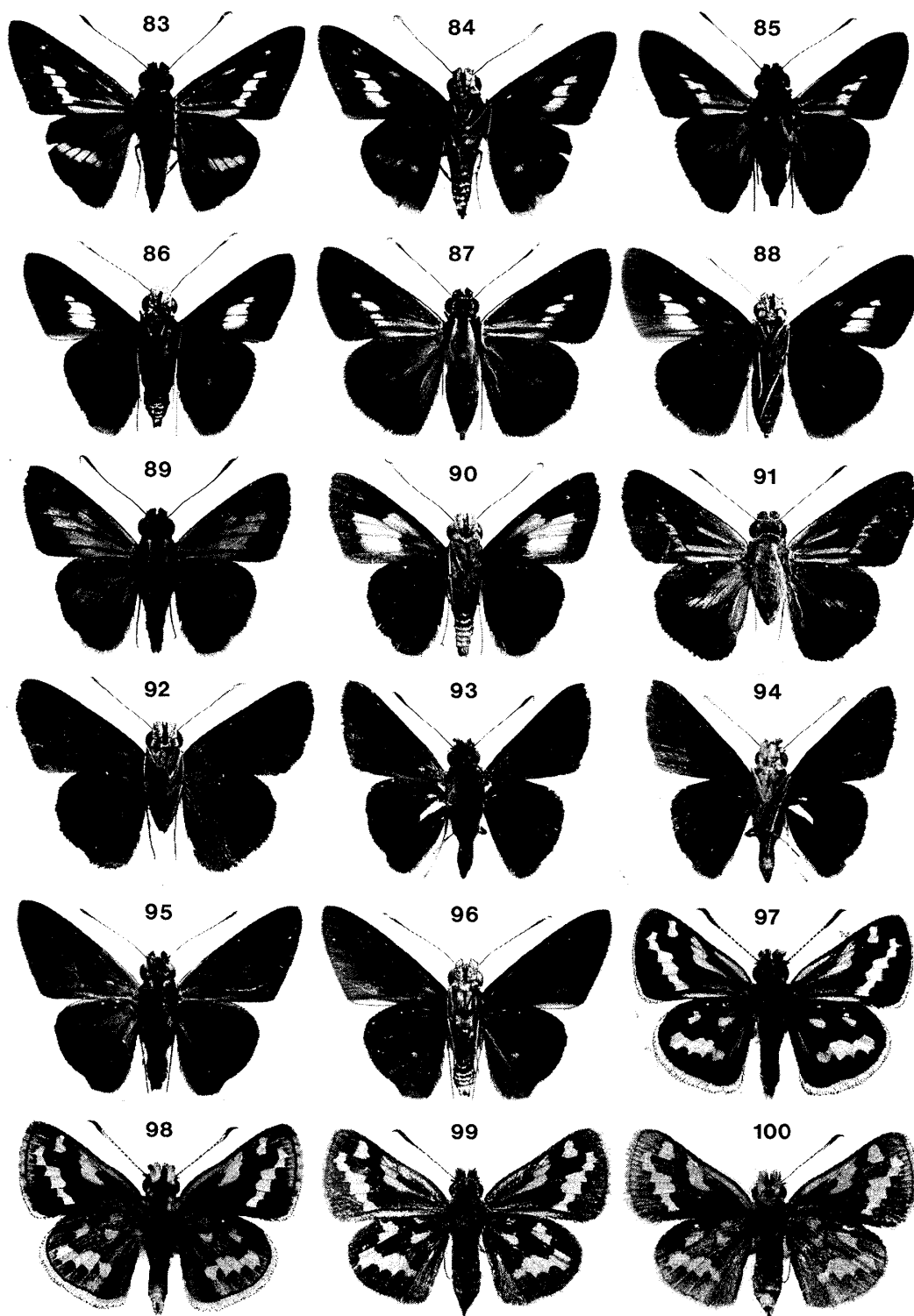
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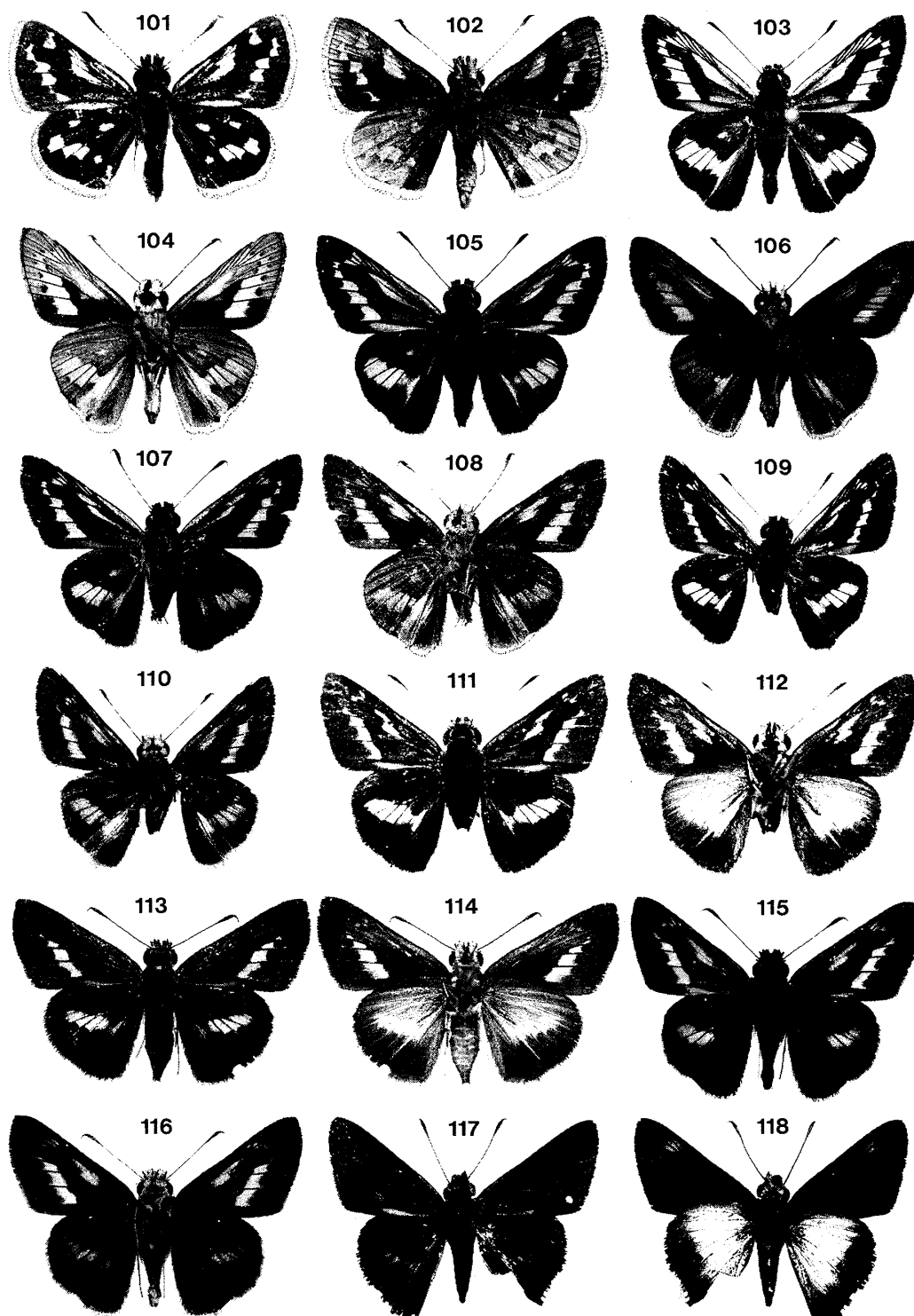
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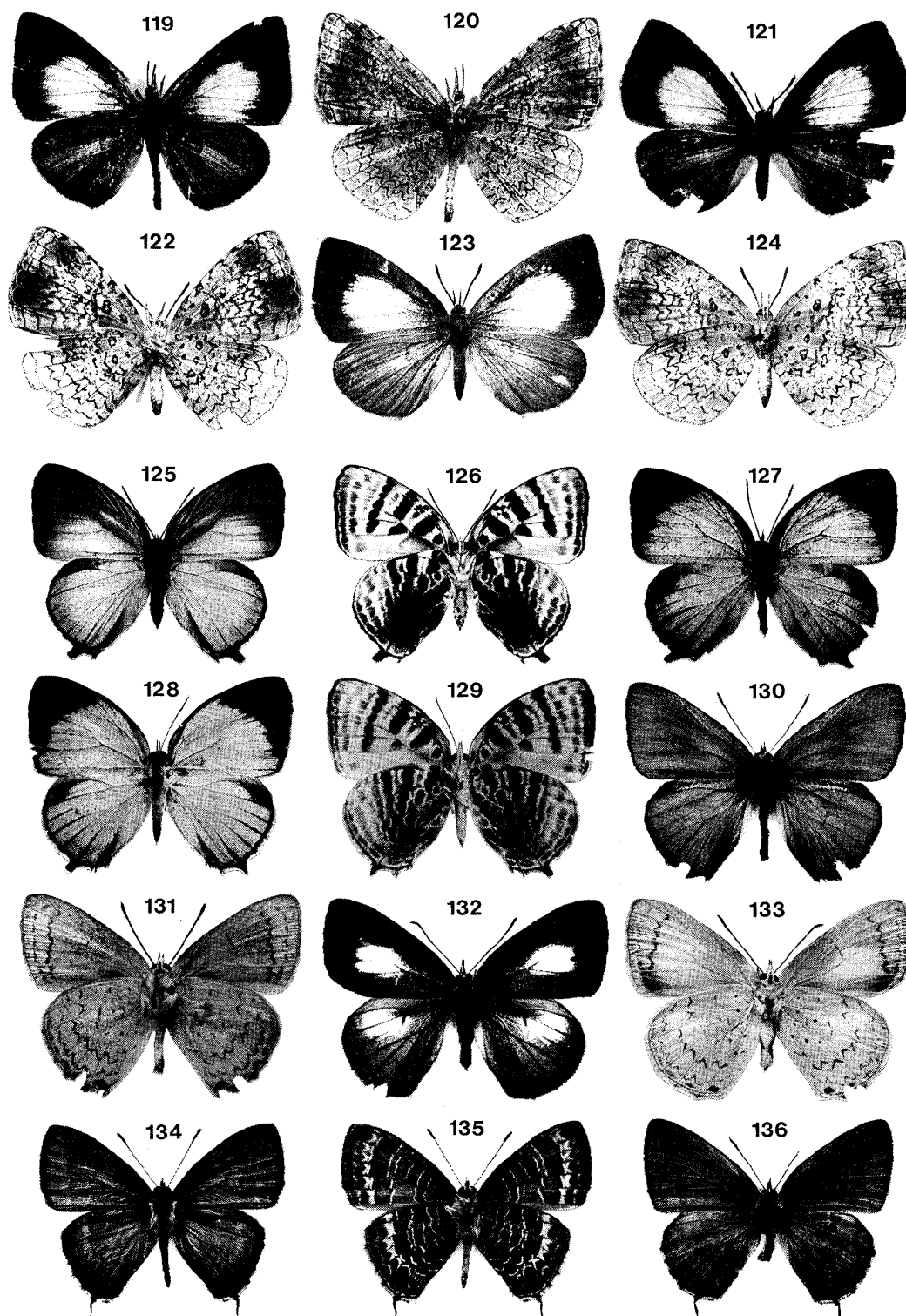
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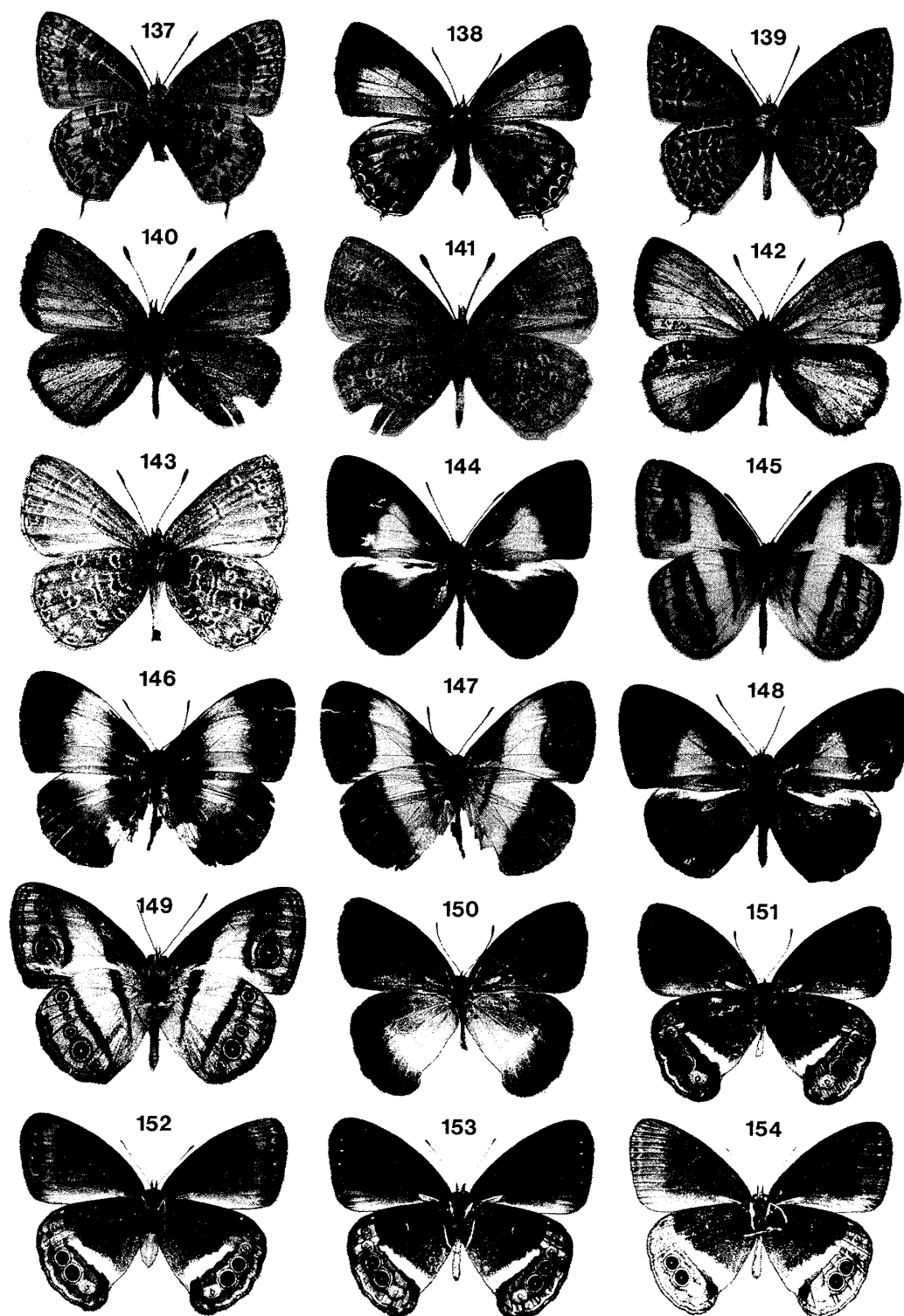
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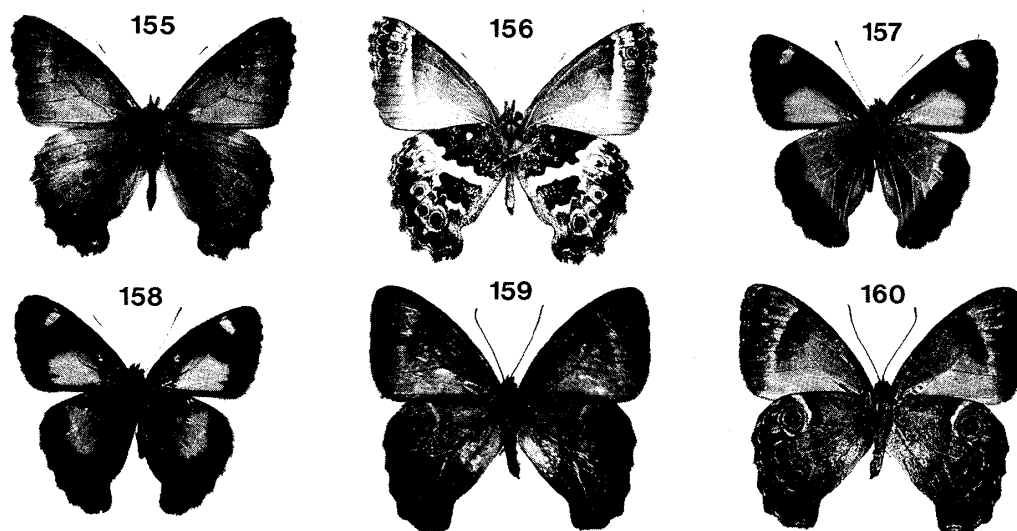
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